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ESSAYS
ON THE
DISEASES OF CHILDREN,
WITH CASES AND DISSECTIONS.

VOLUME I.

CONTAINING

ESSAY I. OF CYNANCHE TRACHEALIS, OR CROUP.
ESSAY II. OF THE BOWEL COMPLAINTS MORE IMMEDIATELY CONNECTED WITH THE BILIARY SECRETION.

BY JOHN CHEYNE, M. D.
FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH:



EDINBURGH:
PRINTED BY AND FOR MUNDELL & SON,
AND LONGMAN & REES, LONDON.

1801.



19

ESSAYS

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WITH CASES AND DISSECTIONS.

ESSAY I.

OF

CYNANCHE TRACHEALIS,

OR

C R O U P.

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DIRECTIONS TO THE BINDER.

Plate I. facing page	-	-	52
Plate II. facing page	-	-	57
Plate III. facing page	-	-	60
Plate IV. facing page	-	-	64
Plate V. facing page	-	-	68

PREFACE.

WHEN Dr. Harris published his Essay on the Acute Diseases of Children, Sydenham said to him, "Without flattery, you are the first man I ever envied; and it is my firm belief that your little book will be more useful to mankind than all I have written." The book did not in itself, perhaps, merit so high a commendation; but Sydenham foresaw that it would turn the attention of physicians to a part of their profession the most useful, and the most neglected.

STILL this department is strangely overlooked. Children are not admitted

into public hospitals, and their diseases are ill understood, and superficially treated, or flurred over, by those who profess to teach medicine. The best physicians do not scruple to acknowledge, that they find nothing at first so difficult as the treatment of these diseases; and it is only by careful observation, and after years of practice, that this most interesting branch of professional knowledge is to be attained. These things had made a deep impression on my mind when I entered on the charge of an extensive range of practice, in a place where some of the most formidable of the diseases of children are peculiarly frequent and dangerous. I devoted my chief attention, therefore, to this subject, and resolved to seek, with unremitting diligence, all occasions of observation and of study in a department so intimately connected with the

duties which I had undertaken. I soon found my cases and observations multiply. I have been careful to compare them with the observations and cases of others; and I have arranged them systematically, with the intention of submitting them to the public, not without hopes of being useful to my profession.

My design is to discuss, in separate Essays, the most important of the Diseases of Children, beginning with those, as less intricate, to which children, after being weaned, are exposed, and proceeding afterwards to those which attack infants at the breast. My hopes of being useful rest upon the fidelity of my observations, and the minuteness and accuracy of detail, where I may have been enabled by dissection to elucidate any important points in the na-

ture and history of the diseases of which I treat.

IN this Effay, which I now venture to publish, I have attempted the discussion of one of the most interesting diseases, the most alarming in appearance, and in reality one of the most dangerous to which a child can be exposed. These motives might alone have been sufficient to lead me first to the discussion of the subject I have chosen; but in my situation I found an additional motive, of great influence. To this disease children are peculiarly exposed in the town where I practise; and the opportunities which this frequency has afforded me of observing it in all its stages, and also of tracing, after death, the appearances and nature of the disease, have given me a confidence in what I have to lay before the public,

which I could not otherwise have attained.

WITH regard to the way of treating the subject, I have been chiefly solicitous to establish such facts as might serve as the sure foundation of safe and effectual practice. It is not unbecoming to say, that my histories are accurate, and that the dissections have been careful. These are points of acknowledged importance, and will free me from any imputation of rashness. In the body of the Essay, however, I have not dwelt much on the morbid appearances, because I am sensible that the Engravings which accompany the cases will explain those appearances more accurately than the most laboured or lucid description.

It is the singular good fortune of this

first Effay to have received these illustrations from a Gentleman well known to the medical world by his excellent anatomical works, who, to a masterly use of his pencil, joins the most consummate knowledge of Morbid Anatomy; and I need scarcely add, that it receives its chief value from this exertion of his friendship.

ESSAY I.

ON

CYNANCHE TRACHEALIS.

ILLUSTRATED BY ENGRAVINGS.



THIS ESSAY IS INSCRIBED,

AS A TESTIMONY OF RESPECT,

TO

JOHN ROLLO, M. D.

SURGEON-GENERAL TO THE ROYAL ARTILLERY, &c. &c.

BY HIS MOST OBEDIENT SERVANT,

JOHN CHEYNE.



ESSAY I.

ON

CYNANCHE TRACHEALIS.

THE disease which in this country is called Croup, may be defined an inflammatory affection of the Trachea, which in the progress of the disease is accompanied with an effusion which becomes a tubular membrane, lining the inflamed surface.

It might seem strange that a disease so striking in the symptoms, and so speedy and fatal in the event, should not have been clearly described¹ earlier than the middle of last century, were

¹ The following passage (transcribed from Ballonius into the *Sepulchretum of Bonetus*, Vol. I. p. 484.) may refer to this disease: “Ægri quatuor mihi noti, qui eodem fere tempore interiire pene morbo consimili: Omnibus medicis negotium dedit: Imo aum asserrere morbum non intellexisse: Difficultas erat spirandi summa, spiritus frequens et parvus ad mortem usque: In ficco velut spirare videbantur: Nec tussis nec sputum, spiritum ne ad momentum cohibere poterant: Erecto paulum corpore ita parvum et frequens spirabant: Febris non erat magna, nec quæ istam respirationem requireret,” &c.

it not remembered, that formerly all the ailments of children were much neglected, and that even the most eminent physicians, when called to children, went with reluctance, judging their diseases to form a labyrinth for which they had no clew ².

Yet the descriptions to be met with in every systematic writer of that dangerous angina, in which no tumour is to be found in the fauces ³,

“ Chirurgus affirmavit se secuisse cadaver pueri ista difficili
 “ spiratione et morbo, ut dixi incognito sublato: Inventa est pi-
 “ tuita lenta contumax, quæ instar membranæ cujusdam arte-
 “ riæ asperæ erat obtenta, ut non esset liber exitus et introitus
 “ spiritui externo, sic suffocatio repentina.” *Ballonius, Epid. et*
 “ *Ephemer. Lib. II. p. 197. and 201. See also Hildanus, Cent.*
 III. Obs. 10. Exemp. 1.

² “ Quapropter medici non pauci, nominis amplissimi, palam
 “ sunt nobis aliquando professi, se pueris ægrotis, ac præsertim
 “ recens natis visendis advocatos, invia quidem Minerva, tan-
 “ quam ad mysterium nescio quod evolendum, aut insanabi-
 “ lem affectum sanandum, plumbeis pedibus accedere solitos.”
Harris de Morbis Acutis Infantum, p. 2.

³ “ Etenim angina alia vera, alia notha est: Veræ et legitimi-
 “ mæ quatuor sunt differentiæ. Una quam omnium periculo-
 “ sissimam censuit Hippocrates, ubi neque in faucibus, neque
 “ in cervice quicquam apparet.” *Fernelii, Universa Medicina*
de Partium Morbis et Symptomat. Lib. V. cap. 9.

“ Inter anginæ species gravissima est et celerrima, quæ nec
 “ in cervice, nec in faucibus conspicuum, aliquid efficit.”—
 “ Porro mortifera atque omnium horrendissima angina citissime
 “ occidit, quæ neque in cervice, neque in faucibus quicquam
 “ conspicui vel tumoris vel ruboris exhibet, simulque summi
 “ doloris tormentum, et vehementem febrem, atque tantum
 “ non præsentem suffocationem infert. Tum profecti oculi ver-

however vague they may be, afford sufficient evidence that the disease ⁴ was not altogether overlooked.

Martin Ghifi ⁵, an Italian physician, published the first regular history of Croup; but the best

“ tuntur et rubent et veluti his qui strangulantur prominent.
 “ Vox impedita nihil significat, et qualis catulorum est,” &c.
Nicol. Piso de Cognoscend. et Curand. Morbis, Lib. II. cap. 3.

“ Si inflammatio interiores laryngis musculos occupet synan-
 “ che appellatur. In synanche maxima est respirationis læsio,
 “ ita ut ægri strangulari videantur. Fauces vehementer dolent,
 “ nullus tamen rubor aut tumor, neque in faucibus intus neque
 “ extra in cervice apparet. Hæc species anginæ omnium peri-
 “ culosissima est.” *Lazari, Riverii Op. Universa Prax. Med.*
Lib. VII. cap. 7.

See also the 801. and 802. aphorism of Boerhaave, with Van Swieten's commentary.

⁴ Perhaps it may be added, that there is ground for supposing the disease more frequent now than it was formerly. In an inaugural dissertation, defended at Edinburgh in 1780, by Dr. Ambrose Cookson, there is the following communication from his friend Mr. Fell, of the county of Lancaster: “ After diligent search, I have found some remarks made on Croup at its first appearance in this place in 1760. I say its first appearance, because my father, who was an accurate observer of diseases, and practised physic here for upwards of forty years, could not recollect that the disease once occurred to him; and none of my medical acquaintances had at that time the least knowledge of it.”

“ In that spring, six children labouring under the disease were committed to my care, to all of whom it proved fatal. Catarrhal complaints were then very frequent; indeed in most of them the disease commenced with symptoms of catarrh,” &c. p. 8.

⁵ Martino Ghifi Lettere Mediche in Cremona, 1749. This

and fullest is that of Chrif. Frider. Michaelis, *De Angina Polyposa five Membranacea*, published at Gottingen in 1778. The frequency of Croup in Leith and the neighbourhood, furnished Dr. Home of Edinburgh with materials for an essay on the subject in 1765. From possessing the fame, or perhaps better opportunities, I have been enabled to compose the following history, which I trust is a faithful picture of this striking disease ⁶.

The Croup ⁷ is less known in the temperate than in the northern regions of Europe. Peculiar to no season, it however chiefly appears in the winter and spring, in low situations ⁸ expof-

performance I have not been able to procure ; I therefore must rely on the accuracy of Michaelis.

⁶ I do not allow that the dissertations of Wilcke, *De Angina Infantum*, (*Sandifort, Thesaurus*, Vol. II.) or those of Millar and of Rush, relate to this disease. The dissection by Dr. Martin in Wilcke's essay appears to have induced Michaelis to say, in p. 6., that it contains one or two examples of the disease ; but I think even that is far from being a clear case of Croup. The acute asthma of Dr. Millar is evidently a different disease, and in the Nosology ought to occupy a place in a different class. Dr. Rush, in his Dissertation on the Spasmodic Asthma of Children, *London 1770*, confounds the two diseases, and does not seem to understand the true nature of either.

⁷ Concerning the etymology of this word, Rosenstein says, " He has not been able to learn any vulgar name for this disease, except that the Scots call it Croup." I rather think *roup* is the word ; it is called Roup in this town ; and, like many of our words, it is, I imagine, of French origin, *roupie*.

⁸ This disease, we are informed by Dr. Crawford, prevailed

ed to air passing over large bodies of water ; and it is most especially the disease of sea-port towns. It is very prevalent in cold changeable weather, often appearing after a cloudy and hazy day ; insomuch that I have seen a mother, into whose family the disorder had been a frequent intruder, kept in constant anxiety by this condition of the atmosphere.

The Croup chiefly prevails in children from a short time after birth ⁹ until puberty ; attaching itself to particular families ; and generally attacking the most robust and ruddy children. It does occur, but more rarely, in children exhausted by some other disease.

The disease ¹ generally comes on in the evening, after the little patient has been much exposed to the weather during the day, and often after a slight catarrh of some days standing. At first his voice is observed to be hoarse and piling ;

in the Carse of Gowrie, a plain in Perthshire, bounded by the river Tay ; but he adds, “ Hæc planities vero nuper deficcata “ fuit, et rarius occurritur morbus.” *Disquisition Med. Inauguralis de Cynanche Stridula*, p. 13.

⁹ I have known this disease in a child three months old, but it does not frequently occur before weaning. It has been observed (I believe by Dr. Home), very justly, that the younger children are when weaned, they are the more liable to the disease.

¹ This description is in the main taken from a very perfect case which I attended the winter before last, and which exhibited the disease as it will often be seen in violent attacks.

he shuns his play-fellows, and sits apart from them, dull, and, as it were, foreseeing his danger. His illness, indeed, does not prevent him from going to sleep, but soon he awakes with a most unusual cough, rough and stridulous. And now his breathing is laborious, each inspiration being accompanied by a harsh shrill noise, most distressing to the attendants: His face is swelled and flushed, and his eye blood-shot; and he seems in constant danger of suffocation: His skin burns, and he has much thirst; he labours more and more in breathing; still the ringing noise is heard, and the unusual cough: He tries to relieve himself by sitting erect; no change of posture, no effort gives him relief. Generally his sufferings are thus protracted until morning, when perhaps there is a slight remission; his breathing is a little easier, but the anxiety, the fever, and the cough remain; he is soon as ill again as ever; and these symptoms continuing, weakened by the violence of his illness, with purpled lips and leaden countenance, he dies in two or three days². In other cases, the disease, after continuing some time, appears suddenly alleviated: The breath-

² There are very distinct histories of the disease ending fatally in 24 hours: Of this Mr. Alexander saw four instances. Generally, however, the child does not die before the third or fourth day. Sometimes the disease continues much longer, for several weeks.

ing is free, the child soon becomes cheerful, his appetite for food returns, he amuses himself, and seems perfectly recovered, and the hope of every one is raised, only to make the disappointment more keen; for the child suddenly gets worse, and dies, his livid and swollen face and convulsive struggles giving him the appearance of one that is strangled.

When Croup is favourable, it terminates in various ways. Most commonly, after the disease has arrived at its height, the sequel is as it were a retrogression of the attack; there is poured out a moisture on the skin, the fever declines, and the croupiness, and, lastly, the cough, gradually wear away.

When bleeding is used upon the commencement of the violent symptoms, the relief is often immediate; and I have scarcely believed that I saw the same child breathing softly, who ten minutes before lay gasping and convulsed.

Sometimes, after the disease has continued a few days, a viscid and white substance is expectorated, and the child is relieved³: Sometimes the Croup is chronic, and does not subside for weeks, when the resolution is very gradual, the child now and then coughing up portions of this white membrane.

³ This does not always happen. See case 10, where the membrane was twice rejected, completely formed, and yet the child died.

When, in the urgency of the attack, the fauces and neck are examined, with a view to investigate the cause of these symptoms, even when a sense of heat is complained of in the throat, the tonsils are not swelled, and but little inflamed. In some instances there is a fullness to be discerned in the swell of the neck; but the disease is generally unaccompanied with this sign.

It may be said of this complaint, in common with *Cynanche Tonsillaris*, that the first attack establishes a predisposition to the disease. I have observed, that after the first attack, a slighter cause will produce Croup a second time than is required originally; nay, I believe that external cold and wet, without any specific state of the atmosphere, will bring on a recurrence of the disorder⁴. It is a confirmation of this, that children who have had croup, when they are affected with catarrhal complaints, have more or less of the croupy cough until they arrive at their 14th or 15th year.

Upon dissecting the body, the cause of these alarming symptoms becomes sufficiently obvious. When the child dies after an illness of

⁴ Subsequent attacks are supposed to be less violent than the first; but I should, from my own experience, be led to believe that there is some error in this. Perhaps the immediate steps taken in consequence of the alarm excited by a knowledge of this dangerous complaint, may prevent it from forming. I have seen the third attack more violent than any former one.

three, four, or five days, there is found lining the windpipe a white membrane, of considerable tenacity. It arises a little under the larynx, and is sometimes prolonged into the division of the trachea; and generally a quantity of a white fluid, like matter with which the lungs are filled, is seen gurgling up. The attachment of the membrane is slight, but the inner coat of the windpipe is inflamed. The inflammation, which is still perceptible, and which of course must have been more violent before this fluid exuded, I hold to be the immediate cause of the bad symptoms in the first stage of the disease; as the adventitious membrane and puriform fluid^s, the consequence of that inflammation, is in the conclusion of it.

The pathology of Croup is very simple. When the child dies, the inflammation has terminated by effusion. This effusion is of a lymph, strongly resembling purulent matter; which exuding on the inflamed surface of the windpipe, thickens there, forming the membrane. That this is the natural explanation, is proved to my conviction by analogies from other diseases; for a similar membrane is thrown out on other secret-

^s I have added a case, where the membrane, observed on dissection, was not such as to impede the respiration; it was not more than a few detached crusts: But it would seem that the inflammation, the effusion in the lungs, and the general affection, had produced the same fatal effect.

ing surfaces, as in diseases of the intestines ; and it is one of the most common appearances ⁶ we find in dissections, being the effect of pneumonia, and the cause of adhesions between the lungs and pleura. As an argument, I may state, that I have discovered in a dissection of Croup an effusion ⁷ surrounding the outside of the trachea, resembling, in quantity and quality, the white of an egg, and which, if it had been exposed to the drying influence of the air in respiration, would probably have assumed the very appearance of the membrane. I have seen this exudation, in all its different degrees of consistence, gurgling up at the epiglottis, puriform, and quite fluid ; then at the larynx, possessing more tenacity ; and, lastly, lining the lower part of the trachea, firm, and completely membranous. But in all these circumstances the colour was precisely the same. That this membrane is not merely inspissated mucus, I likewise conclude from the dissimilarity of appearance ; from the fluid of which it is composed wanting that resiliency which characterises mucus ; from the membrane bearing maceration, without having its structure

⁶ *Morgagni de Sed. et Caus. Epist.* 21.

⁷ See case 7. In the Pædanehone of Severinus there is a similar appearance observed in the dissection of a boy who died of the epidemical angina, of which he treats : “ Pervestigata “ larynx, crustacea quadam pituita, facie exteriori contacta, “ citra ulceris speciem.” *De Abscess. Nat.* p. 528.

deftroyed; and from their chemical properties being widely different ⁸. But indeed it is not natural to explain the appearance in this manner; and certainly it is not neceffary to refort to this folution of the difficulty, for fimilar concretions are found in fituations where there are no mucous glands; and I do not think that mucus will in any circumftances affume this ftructure; if it did, we fhould fee the membrane in thofe difeafes of children where the fecretion of mucus is profufe, but where from weaknefs the power of expe&tionation is loft.

It is no hard matter to explain the difficulty of breathing in the latter part of this complaint, when the membrane is completely formed; but in the beginning, the tumor and inflammation (although I fufpect they are then much more confiderable than they are afterwards) will hardly be thought to afford a fufficient explanation of the orthopnœa. I muft fuppofo, therefore, that along with this fullnefs, and perhaps in fome meafure occafioned by its ftimulus, there is a fpafmodic conftriction of the larynx. This I am the more inclined to believe, becaufe, although in the firft ftage I have never feen an intermiffion in the difeafe, unlefs in confequence of bleeding ⁹, I have obferved the breathing, which is

⁸ *Vide* Michaelis, p. 60. et feq.

⁹ Or fome other antiphlogiftic remedy.

always laborious, performed at particular times, and for several minutes together, with incomparably more distress. The inflammatory affection of the larynx is doubtless sufficient to account for the alteration which takes place in the sound of the voice and cough.

There is a circumstance mentioned in the history of the disease, which I have not seen satisfactorily resolved: I allude to the sudden extinction of our hopes when they are at the highest, consisting first in a wonderful remission of the disorder, and soon after in a fatal exacerbation. Perhaps this ought to be attributed rather to a mechanical than to a spasmodic affection of the parts. It sometimes takes place after the expectoration of part of the membrane; and I suppose that the connection of the remainder with the trachea may be loosened; so that in taking a full inspiration, this detached portion acts as a valve, completely shutting up the tube, and thus suddenly suffocating the child.

Michaelis * supposes this disease to occur as

* “ Suspicio nempe, morbum in adultioribus non rarius
 “ quam in infantibus occurrere; cum autem adultiores, mate-
 “ riam lymphaticam, primo statim tempore, quo in asperam
 “ arteriam effunditur, antequam in solidum coagulari concre-
 “ mentum possit, ore rejiciant, morbum in eis, primis jam ple-
 “ rumque in incunabilis, suffocari, et sub communis affectionis
 “ catarrhalis specie, observatorum oculis se subtrahere.

“ Infantum autem plane alia est ratio; isti enim initio mate-
 “ riam in asperam arteriam effusam, mollem adhuc paucamque,

frequently in adults as in children, with this difference, that adults have the power of expectorating the lymphatic exudation before it becomes a solid membrane. But if this were the case, we should at least hear the croupy cough, and peculiar voice and breathing, for these precede the formation of the membrane. Children of all ages up to puberty have died of Croup; and yet a boy of ten, twelve, or fourteen years of age, has, as perfectly as ever he can have it, the power of expectoration. I have heard of no example of this disease after the fifteenth year; and I have imagined this to depend on that change which happens in the constitution at puberty, and perhaps, in a more peculiar manner, on the change which the upper part of the wind-pipe undergoes. That a very material alteration does take place, is evident from the change in the voice, which now becomes firm and manly. I therefore suppose, that the greater degree of tone with which the trachea is endowed, enables it to resist those excitements which would have operated on the same organ in a lax and less per-

“ rejicere negligunt; mox autem illa ita increfcit, ut vires jam
 “ infantis ad eam rejiciendam non fufficiant. Credo itaque ru-
 “ dimenta, initiumque morbi noſtri, in adultis non minus fre-
 “ quenter, ac in infantibus occurrere; perfectum autem, atque
 “ completum morbum, cujus naturam membrana polypofa de-
 “ clarat, ob mox expofitas rationes, in adultiore ætate rariorem
 “ eſſe.” P. 177.

fect state. Hence it may be seen, that I consider the debility of the trachea as the predisposing cause to Croup.

The obvious exciting cause of this disorder, the inflamed trachea, the throbbing and accelerated pulse, the great thirst, burning skin, and high-coloured urine, together with the pain in the diseased organ, point out that it legitimately belongs to the order of inflammations; an order of diseases of which the general treatment is peculiarly applicable to the disease under review.

With a view to the formation of a plan of cure, it is proper to consider the disease as consisting of two stages—the incomplete, or inflammatory; and the complete, or purulent. In the former the membrane is not yet formed; in the latter it is fully formed. It is in the first stage that every effort for the cure of the disorder is to be made. In the first stage, our practice is bold, as it is simple; and unless the summary measures taken in the beginning succeed, all success, let the management afterwards be ever so skilful, is very problematical.

In the first and second days of illness, when the signs above enumerated² are distinctly be-

² To these might be added the buffy coat on the coagulum of the blood; but this is not always found. The parched tongue, likewise, although very common, and often a most excellent index to the inflammatory nature of a disease, is not pathognomic.

fore us, when we find the croupiness attended with much pyrexia, it is our duty to let blood freely ; and to do it effectually, it must be done with the lancet. Venæsection is easily performed, as, from the nature of the disease, the jugular veins are always tumid ; and in a child it is easier to let blood from these than even from the veins of the arm. If, indeed, the child is very young, and worn out by a former illness, or of a tender constitution, it may be proper to apply leeches ; but it will very rarely happen that we cannot use the lancet ; and it is of much consequence to take away a large quantity of blood ³ without delay, it being well known, that to do this suddenly, is of the utmost importance in inflammatory diseases.

After bloodletting, I have been accustomed to order an emetic. I have observed the best effects from emetics, whether used before or after the bloodletting.

The warm bath is another very unequivocal remedy ; but as it is a popular and simple application, it is generally used, along with an emetic, before the physician is called ; and together or separately, by their antiphlogistic powers,

³ It is not easy to establish a rule, but I should account from three to five ounces a full bleeding in a child under five years of age. I never at one bleeding took more than eight ounces of blood in this disease, and in every instance it will be found a free bleeding.

they in very many instances prevent the formation of the disease.

Brisk purges, when the bowels are inactive, and indeed in most attacks, are so obviously proper, that it is sufficient merely to mention them.

The solution of tartarised antimony, given every three or four hours, in nauseating doses, I have used with so much advantage, that I have no hesitation in recommending it. The vinegar of squills may be used for the same purpose.

The antimonial solution may, in combination with laudanum, be administered as a diaphoretic; but when the febrile symptoms run high, I should prefer giving the solution by itself, so as to occasion a continued nausea.

I have seldom omitted the application of a blister to the neck, and I believe it is a valuable addition to the plan of cure, although I cannot affirm this upon my own experience. Blistering has proved, however, so useful in similar diseases, and is so strongly recommended in this, that it is well entitled to every attention.

That part of the plan of cure upon which I would chiefly dwell, is bloodletting. If in the inflammatory stage it is not, in the first instance, attended with an abatement of the bad symptoms, it must be repeated according to the strength of the patient. Should the physician dislike the use of the lancet a second time (and indeed in this repetition he will not at all times

have the concurrence of the parents), I recommend the application of a number of leeches to the neck. The many opportunities which I have had of observing the advantage decidedly gained by such treatment, have overcome the repugnance I had to the employment of this remedy in the beginning of my practice; and had I no other reason for affirming that the acute asthma of Millar is not synonymous with Croup, this alone were sufficient, that he dissuades us from bloodletting, and recommends assafœtida, musk, and Mindererus's spirit ⁴.

The second stage of the disease is known by some remission in the phlogistic appearances, such as a change in the countenance from a florid to a leaden colour; by the pulse getting smaller; and by the difficulty of breathing continuing or increasing, the child frequently breathing easiest in postures which might be thought most unfavourable ⁵ to respiration; and by a fe-

⁴ These medicines, says the Doctor, though children loath at first, they afterwards, when forced to take, even acquire a relish for!

⁵ This, as a symptom peculiar to the second stage, I have frequently observed. I find it taken notice of in two instances, but without any conclusion having been deduced from it.

“Malgré son oppression il avoit toujours mieux aimé avoir la tête basse qu' élevée.” *Observations sur une Maladie analogue à l'Angine Polypeuse ou Croup des Enfans, par M. Mahon Associé Regnicole à Chartres. Histoire de la Société Royale de Médecine, p. 207.*

diment in the urine. From having observed in dissections that the thyroid veins are very turgid, I have been induced, in this stage of the disease, to apply leeches to the neck; I have also used emetics, to procure, by the agitation which they produce, the expectoration of the membrane, should it occupy, as sometimes happens, only a small space in the trachea. The bowels are to be kept open by glysters; and the low regimen observed in the first stage is to be laid aside; and the strength of the patient supported.

It has been proposed to give children calomel under this disease, throwing it in quickly, with a view of bringing on salivation. I have ordered it in the second stage, but I never found it to be of any service. In a chronic state of the disease⁶, I think this medicine promises success.

“Mitior respirationis difficultas, si capite paullulum reclinato lecto incumberet, quam si sedentis potius sedem imitaretur.” *Observat. a Cl. Baec ac Salomon. Michaelis*, p. 285.

I apprehend the explanation of this to be, that the trachea, stuffed with the membrane, has its capacity increased, by being stretched out to the full extent, which happens when the head is leaned backward; whereas when the patient sits erect, which generally is the easiest posture in difficult breathing, the head falls somewhat forward, and the membrane, being doubled together in the trachea, becomes impervious.

I am inclined to rank a preternatural drowsiness as a pathognomic of the second stage; it certainly is often to be observed.

⁶ A case of this kind will be found in the last vol. *Medical Annals*.

In the first stage, the remedies we already possess are so valuable, that I should be unwilling to relinquish them, unless the superior powers of a substitute were demonstrated.

Some physicians have proposed a scheme, absurd, because impracticable, namely, to pull out the adventitious membrane, after having performed the operation of bronchotomy ⁷. This operation cannot be done in the usual way, by making an aperture between two of the rings of the trachea; a longitudinal slit must be made, cutting the cartilages directly across. In the first instance, the bleeding from the thyroid veins is to be encountered, which, to my thinking, would suffocate the child. But suppose this difficulty overcome, and the forceps introduced into a tube not half an inch in diameter, (for such is the trachea at two years of age) the membrane may not, after the incision is made, be found to possess that tenacity which will enable it to bear the pulling out. Such I have found it after death, at the very place where the operation must have been done ⁸: And if we

⁷ This operation was proposed by Dr. Home; has abettors in Drs. Crawford and Michaelis; and, we are informed by Dr. Rush, was actually performed in Philadelphia by a gentleman of well known skill in physic and surgery!—without success. Dr. Michaelis has many arguments to this point, which leave no impression with me, but that he was a novice in the disease when he wrote this part of his book.

⁸ I have separated the membrane from the trachea down to

loosen the membrane from the trachea, without extracting it, it will meet the first inspiration like a valve, and the child must immediately be suffocated. But farther, Is the child to be cured by extracting the membrane from the trachea? Certainly not; for there are instances where the child has sunk, even after the membrane had, by the use of emetics, been expectorated⁹. Not only the membrane, but the frothy and puriform matter with which the lungs are stuffed, must be removed before he can be saved; for this must be instrumental in the death of the child: I do not indeed believe that any prudent surgeon will be found to perform this operation.

Previous to the detail of a series of cases, I have only to say, that the means of preventing Croup are still more obvious than the plan of cure, and the object is in most instances attainable. I have observed, in the first place, that some families are much more liable to this complaint than others. It is difficult to say whether

its bifurcation, in a case where this substance extended into tubes whose diameter did not exceed the eighth part of an inch, and then I have endeavoured gently to pull it out, but it broke off short. In this instance, the connection of the membrane with the inner coat of the trachea, at the part where it yielded, was stronger than the cohesion of the membrane itself; and in this child the membrane was stronger than I had seen it in any other dissection.

⁹ See case 10.

this arises from a particular mode of education, or is owing to a peculiarity of constitution, which children of the same family often have in common ; but I have had the clearest proofs of this fact, that very often where one child in a family takes the disorder, the other children are sooner or later affected in a similar way. I have known more instances than one where three or four children of the same father and mother have been attacked by this disease ; and authors ¹ have mentioned the circumstance of two children of one family being ill about the same time. In the second place, I have observed, that in Leith the danger is greater or less, in exact proportion to the nearness or distance from the sea-shore ; and I conclude that the observation would hold good elsewhere. Of all the instances I have seen of the disease this year, amounting to ten or eleven, not one of the children lived a stone-throw from the sea-shore or harbour. In Edinburgh, which is only a mile and a half distant from the sea, nay, in the skirts of Leith the farthest from the beach, although not a quarter of a mile removed, the disease is rare : I therefore warn parents to take the alarm as soon as the disorder appears ; and, where practicable, I recommend a change of habitation. This will generally be precaution sufficient, unless where the

¹ *Home and Rosenstein.*

children have already sustained an attack ; in which case it will be necessary, in this uncertain climate, to guard against an indiscriminate exposure to the air, particularly in damp weather, from December to the middle of summer ; and to adopt all those precautions with respect to regimen, so well known, and so strongly recommended as preventives in catarrhal complaints.

C A S E S
OF
C R O U P.

THESE cases will show the nature of Croup better than any general history of the disease.

The four first will place in a favourable point of view the advantages of bloodletting, in producing a resolution of the inflammation. The fifth, from Michaelis, shows a termination of the disease by expectoration of the membrane, effected by the use of emetics.

I may observe, that all the children whose cases are given from my own practice, except the second, were of a sanguine temperament.

C A S E I.

OCTOBER 15.

As I was walking along Bath-street, a woman called me to visit a child who was ill of a cold. I found a fair complexioned boy, sixteen months old, who appeared in perfect health, and I was about to pronounce him so, when I heard him cough very croupily. Being aware of the insidious way in which this disease sometimes steals on, I ordered an emetic and the warm bath, and that the utmost care should be taken of the child, not without hopes that the disease might thus be prevented from forming.

The next evening the same woman came, quite breathless, to inform me that the child was at the point of death; and although she wished me to hasten to her house, she did not expect we should find him alive. On my way thither, she informed me that the emetic had so much relieved the boy, that, thinking him well, she had quite forgotten his danger, and exposed him to the weather in the morning, which was very raw.

When I arrived, I saw the boy so much oppressed, that truly I stood some time without the power of asking a question, or presence of

mind to recollect what was to be done. He was struggling sadly from a difficulty of breathing; his inspiration was peculiarly difficult, and performed with a grating noise; his voice was hoarse; his face was florid, and much swelled; the carotid arteries were throbbing violently; and he seemed in danger of immediate suffocation.

Though doubtful whether it were possible to save this child, I opened the external jugular vein, and took a small cupful of blood, and ordered the warm bath again to be got ready for him. In the mean time, I visited a patient in an adjoining street, and was absent about ten minutes.

When I returned, I found, to my great joy, the boy breathing easily, his face less florid, and the fever already abating. The cough was, however, still ringing, and frequent.

After the bloodletting every circumstance was favourable. Next morning the child was cheerful and easy; but such was the severity of the attack, and so great the accumulation of blood in his head, that a violent ophthalmia, which lasted many days, was the consequence.

The warm bath and a blister were both used, and during the night an antimomial preparation;

but the friends of the child were satisfied he was already recovering before these remedies were prepared ; and I have no hesitation in saying his recovery is to be attributed to the bloodletting.

The croupy cough continued several days.

CASE II.

MAY 16. ONE O'CLOCK, P. M.

Mr. H——'s son, eight years old,—dark eyes and complexion.

He has had several attacks of this disease; one very severe, exactly three years ago, when he was relieved by bleeding in the neck.

Last night at bed-time he was taken ill. His mother gave him an emetic, and, as usual in slight attacks, he was a good deal relieved by the sickness and vomiting. He continued free from all the symptoms of the disease, except the ringing cough; until about half an hour ago, when his breathing became so difficult as to excite great alarm.

His breathing is now laborious, and the sound resembles the hissing of confined air through a narrow opening; it is rather slower than natural; he has the vox rauca and the ringing cough in the greatest perfection; his skin is warmer than is natural; his countenance is flushed; and his eyes are very heavy; his pulse is 120; he has had no passage from his bowels for two days.

He had been a good deal exposed to damp hazy weather; and I remember to have remarked, the night before he was seized, that I was afraid the weather would produce some more

instances of this disease, a child I then attended being about to die of it.

FOUR O'CLOCK.

With this boy Croup always occasions much apprehension; and at my last visit he readily allowed me to bleed him from the arm, whence I took four ounces of blood, and ordered him immediately a dose of infusion of fenna with tincture of jalap. His breathing was not relieved; and about half an hour after the bleeding it was much oppressed, but he soon became easier. The purge has just operated, after sickening him very much.

EVENING.

His pulse, which in the morning was 120, is now only 100; his breathing is free; he has had a profuse perspiration ever since the purge operated; and he is again cheerful.

He was ordered a spoonful of the following solution every four hours: ℞. Sol. Antim. Tart. ʒvi. Aq. Cass. ʒi. Aq. ʒiii. ℥.

MAY 18.

He has been quite well since last report: His cough is still a little rough: Yesterday and today he has been running about the room, and amusing himself as usual.

CASE III.

APRIL 19.

Mr. W——'s daughter, æt. 12.

This girl is exceedingly robust and big of her age, of a florid complexion. She has been threatened with this complaint two or three times; and was taken ill yesterday evening. She had the day before been much exposed to the weather, which was damp and chilly. Though her cough was very rough, she went out to-day. I saw her at ten o'clock at night.

Her respiration was performed with the utmost difficulty; she breathed so high, that I heard her immediately on entering the house, although she lay above stairs. Her friends, tremblingly alive to the danger of her situation, were supporting her in bed, for she could not lie down. Her cough resembled the barking of a lap-dog, very hoarse and sharp; she was much flushed, and complained of pain, or rather great heat in the windpipe; her tongue was white; the tonsils and uvula were not inflamed nor swelled in the slightest degree; she swallowed easily; there was perhaps a fullness in the throat; her pulse was about 130, and pretty strong: She had an evacuation from her bowels this afternoon.

I took from five to six ounces of blood from the arm, and should have taken more, but she nearly fainted under the operation: She got very sick in consequence of it, and vomited; but she could breathe in the recumbent posture immediately after the bleeding, though her cough was still very frequent.

Observing that while the sickness continued, she breathed, comparatively speaking, easily, I was willing to keep it up, and gave her an emetic, which emptied her stomach, about half an hour after the bleeding. When the sickness went off, I had her put into the warm bath, where she remained about a quarter of an hour. I then gave her, to be taken during the night, a nauseating solution, similar to that ordered in the last case. A large blister was applied to the sternum.

Soon after I left her last night, she fell asleep, and slept softly for two hours. The medicine made her very sick during the early part of the morning. Since she was in the bath she has constantly had a moisture on her skin, which is cooler. The blister rose very well. She had during the night considerable thirst, which still continues. Her breathing is easier, but often is interrupted by the cough. Her pulse is 100, and somewhat irregular. The blood is rich and florid, but not fizy. She has had no passage from her bowels.

I was somewhat surpris'd to be again sent for in the evening to visit this girl. Her complaint had returned about four o'clock, and in expectation that it would soon abate, I was not sent for until eleven. Her cough was worse than ever; it was ringing and incessant; the effort it occasioned resembled the convulsions of the whooping cough. Her breathing was quicker than last night, although not so difficult; her pulse was 110, and pretty full; her tongue foul. I found her sitting in the warm bath, and there I bled her to eight ounces. Before I could get the arm bound up she fainted. When she recovered, her breathing was manifestly easier. I continued sitting by her for half an hour, during which time she was not two minutes free from a convulsive shudder, which sometimes made her even start up in bed. Her pulse was now, however, under 100, and not very weak. As she was still faint and sick, I gave her a small tea cupful of weak port wine negus. I ordered the volatile liniment, to rub her neck.

APRIL 21.

When I left her last night, her cough became much less frequent, and she has not coughed since one o'clock in the morning. Her pulse is 70; and she breathes like a person in perfect health. She had a very severe fit of convulsive shuddering about two hours after the bloodletting. I called in the evening, when she had ra-

ther more feverishness, and some cough, but it had quite lost the croupy sound. She has started much during the day. Her bowels are open, in consequence of using the laxative powder, which was not given before this morning.

APRIL 24.

She is quite free from all her complaints.

CASE IV.

“ A girl 15 months old, living a mile distant
 “ from the sea, appeared in the evening to be
 “ somewhat indisposed, her skin being a little
 “ more hot than usual. Dr. Home, who went
 “ to see her in the morning, found her breath-
 “ ing laborious, the pulse hard, and beating one
 “ hundred and thirty-five times in a minute.
 “ He ordered five ounces of blood to be drawn
 “ off immediately : Her voice then grew sharp,
 “ and resembled that of a cock ; the breathing
 “ frequent and deep ; her forehead and inside
 “ of her hands very hot ; both hands and feet
 “ swelled, but without any redness. The pulse
 “ now being hard, she was bled again, which
 “ gave her much ease. She was made to drink
 “ and breathe the vapours of warm water mix-
 “ ed with a little vinegar : This had a good ef-
 “ fect, and promoted expectoration. The body
 “ was unbound with the magnesia alba ; in the
 “ evening a blister was applied round the neck :
 “ The third day she was somewhat better ; but
 “ the voice the same as before, the pulse hard,
 “ and the breathing deep. In the evening four
 “ leeches were applied under the chin, just at

“ the top of the windpipe ; and they having left
“ off sucking, the place was fomented with warm
“ water, so that the blood continued to ooze out
“ for some hours. The child was well the next
“ morning.”

CASE V.

“ Infantis unius et dimidii anni, qui nutricis
 “ adhuc lacte spiffiore jam alebatur, lectulum
 “ cum mutato loco fenestræ apposuisſent, aëri
 “ liberioſem juſto tranſitum concedenti, die 29
 “ Novembris habitum alacrem cum trifti muta-
 “ vit, accedente noctis præcipue tempore, gra-
 “ viori tuſſi : Nec inſequente die etſi obambu-
 “ laret melius valuit. Cum febris obſervaretur
 “ nulla, nil niſi laxans accepit. Inſequente me-
 “ dia nocte cum aliqua tuſſi, ſpiritus ducendi
 “ apparuit difficultas, anxia erat et celer respira-
 “ tio, quæ ſuffocationis metum induceret, præ-
 “ ternaturale clangori ſtridenti juncta. Fortiter
 “ movebatur pectus, fortiterque pulſabant arte-
 “ riæ. Per bihorium hæc continuavit ægrotæ
 “ ratio ; tunc autem turbas iſtas placida exce-
 “ pit quies. Primi Decembris, tempore matu-
 “ tino, pulſus plenus erat ac celer, facies rubra,
 “ inquietudo ſumma ; increverat interea et re-
 “ ſpirationis difficultas et raucedo. Cum de
 “ morbo noſtro jam cogitaretur, vena in bra-
 “ chio ſecta quinque ſanguinis unciaë mitteban-
 “ tur ; quo facto et pulſus minuebatur vehe-
 “ mentia et reſpirationis difficultas ; veſicato-
 “ rium nunc colli anterioris lateri applicabatur,

“ nec enemata omittebantur. Attamen spei e-
 “ ventus minus respondit ; exacerbabantur enim
 “ versus vesperam et pulsus vehementia et spi-
 “ ritus ducendi difficultas, facillimumque jam
 “ erat stridorem istum peculiarem distinguere
 “ atque agnoscere. Diversa nunc aceti vapores
 “ ratione, in usum trahebantur ; nam non so-
 “ lum spongia aceto calido immersa, ori ægrotæ
 “ admovebatur, sed vas etiam aceto ebulliente
 “ repletum, tenuique solummodo linteamento
 “ tectum, lecto apponebatur, et itaque aer quem
 “ æger ducebat aceto impregnabatur. Nec quid-
 “ quam hoc remedio, ægrotæ majus afferre vi-
 “ debatur levamen ; respirationis enim inde mi-
 “ nuebatur difficultas, et placidus plerumque
 “ mox insequabatur somnus. Infusum nunc flo-
 “ rum sambuci theiforme, copiosumque oxymel
 “ simplex exhibebatur. Vespertino tempore col-
 “ lecta urina, a primo jam initio alba apparuit,
 “ frustulisque mucosis quam plurimis fundum
 “ neutiquam petentibus, sed ei innatantibus,
 “ commixta. Prima insequentis diei luce, ali-
 “ quando melius valuit, et sponte mucii aliquid
 “ rejecit. Quæ omnia cum ante meridiem bene
 “ se haberent, imminutaque deprehenderetur
 “ morbi vis, emeticum exhibere mucii sponta-
 “ nea ejectio iussit. Repetitis itaque vicibus oxy-
 “ mel propinabatur squilliticum, usque dum vo-
 “ mitus ciceretur. Accedente vomitu insignis
 “ nec muco remixta membranæ albæ, diversæ

“ magnitudinis, in frustula divisæ, a mucò ordi-
 “ nario ob majorem tenacitatem facillime di-
 “ stinguendæ copia excernebatur. Felicissimus
 “ ille prioris emetici successus aliud exhibere
 “ suavit. Nec illud quoque levamine caruit ;
 “ liberabatur enim æger a membranacea mate-
 “ ria æque ac mucò omnium tenacissimo. Gra-
 “ tissima nunc in infante apparuit mutatio ; pul-
 “ sus æque ac respiratio naturali similior evasit,
 “ et placido sopitus somno per totam jacebat
 “ vesperam, maximamque insequentis noctis
 “ partem, sine ulla pene febre vel aliis pathe-
 “ matibus transegit. Tertii Decembris diei ini-
 “ tio bene valuit, nec de alia re nisi de vesica-
 “ torio questus est. Nunc laxans propinabatur,
 “ cujus ope larga educebatur mucì copia.

“ Abundans nunc quoque ex naribus stillare
 “ cœpit humor. Nec minus insequente nocte
 “ bene se habuit, etsi tussis, nec molesta tamen,
 “ per intervalla rediret. Clangor specificus post
 “ primum jam evanuerat vomitum, et raucedo
 “ in dies minuebatur. Quarto Decembris mane
 “ aliud exhibitum fuit emeticum, quod vero
 “ paullulum modo mucì ejiciebat. Quinto jam
 “ cibum appetere, et pristinam recuperare ala-
 “ critatem cœpit. Laxantia, quorum adhuc
 “ continuabatur usus, magnam semper mucì
 “ quantitatem evacuarunt.”

I SHALL now proceed to detail five Cases which terminated fatally. The four first occurred in my own practice, the fifth is taken from Michaelis.

In the first and fourth the membrane was most completely formed, but there was least inflammation. In the second, the membrane, of which perhaps part had been expectorated, was less complete, but the inflammation was greater. In the third the inflammation was very great, but the membrane was less perfect than in any of the other cases. In the fourth case a considerable quantity of calomel was given, without producing any good effect. The fifth case ended fatally after the expectoration of the membrane, the boy dying hectic.

CASE VI.

On the 22d of February, in the same house where I saw the first case, I found a second in a child of a similar temperament. The character of the disease, however, was quite different. The inspiration was very difficult, but not hoarse; the cough was stridulous; the child was pale rather than flushed. When his mother took him on her knee, he struggled for breath, and seemed to be easiest when lying on his back, with his head low. His eye was heavy; he was afraid to cry; but was extremely fretful and irritated when I laid hold of his arm, insomuch that it was long before I got his pulse numbered. In the five seconds it beat 14 strokes, and was weak. His hands were chilly; he had great thirst, and swallowed easily: He had eaten nothing for two days: He had no fullness in the upper part of his neck, and it was not in my power to examine the fauces: He had three stools this morning; and his urine, which has much sediment, he voids frequently.

Ten days ago he took a diarrhoea, attended with griping, which his mother imagined proceeded from dentition. This disorder continued till Wednesday the 17th, when it entirely left him, and the croupy cough came on that after-

noon ; but the mother was not at all alarmed before the 20th, when his breathing had become very high ; still she thought his illness proceeded from his teeth. This morning he was cheerful and easy ; but the respite was granted only for a short time ; his disease became much more threatening, and her fears were seriously awakened.

Of her own accord she had applied a blister two days ago, and she gave the boy a vomit this morning, which brought away much viscid expectoration and bile. I ordered an emetic and two leeches to be applied to the neck.

FEBRUARY 23.

I called early this morning, and found that the child had died an hour before. The leeches were not applied.

DISSECTION.

There did now appear a fullness in the neck ; but this was not an occasional fullness, but rather a thickness and natural shortness of the neck. The face, and skin of the neck, were peculiarly pale, like marble ; the cellular membrane and fat were white, and most delicately transparent, and free from a stain of blood ; the thyroid veins on the anterior part of the trachea were turgid, as were the external and internal jugulars.

The incision was made from the chin to the sternum, and the tongue, trachea, and gullet,

were cut out, and pulled from the cavity of the thorax. There was no inflammation of the fauces, nor any apparent affection of the throat; but upon looking into the glottis, a fluid like pus was observed working up from the trachea. The œsophagus was cut away, and the trachea slit up upon the back part, where there is a deficiency of the cartilaginous rings, and then the membrane presented itself fully formed.

The trachea was cut away near its branching off; and here, upon careful examination, the membrane was found most complete, and very strong; but gradually, as it stretched upwards behind the thyroid cartilages, it degenerated into a puriform matter, which loosely adhered to the rima glottidis and sacculus laryngeus. This matter was not like the natural secretion of the mucus of these parts; it was not the mucus thickened and become tough; much of it was fluid as the natural mucus is, but it had no other resemblance to it; it was like that matter which at first flowed out of the larynx; it was of the consistence of cream, or rather the fluid part of it was thin and watery like whey; and in this the firmer matter, curdy, and like the discharge from a scrophulous joint, floated,

Upon taking up the membrane from the lower part of the trachea, where it was firm, the inner coat was seen inflamed, the vessels red, enlarged, and distinct.

EXPLANATION

OF

PLATE I.

*The Membrane shown by cutting up the Cartilages
of the Throat on the back part.*

A, The EPIGLOTTIS.

B B, The CRICOID CARTILAGE cut and torn
open.

C, The TRACHEA.

D D, The CORNUA of the THYROID CARTI-
LAGE.

E, The ADVENTITIOUS MEMBRANE.

F, The CAVITY of the MEMBRANOUS TUBE.

G, The MEMBRANE where it is weaker, torn
in separating the back part of the Trachea from
it.

H, The MEMBRANE more irregular and liquid,
where it is attached to the larger Cartilages.



EXPLANATION

of

PLATE I

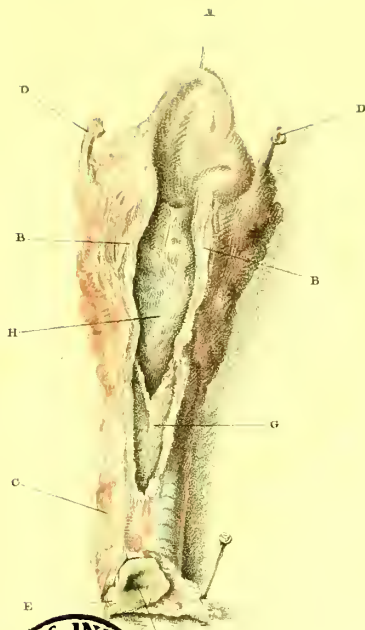
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The following parts of the body are represented
in the accompanying figures.

- A. The Trachea.
- B. The Oesophagus.
- C. The Trachea.
- D. P. The Corona of the Thyroid Cartilage.
- E. The Arteries of the Neck.
- F. The Veins of the Neck.
- G. The Esophagus, showing its position with respect to the trachea.
- H. The Trachea, showing its position with respect to the oesophagus.

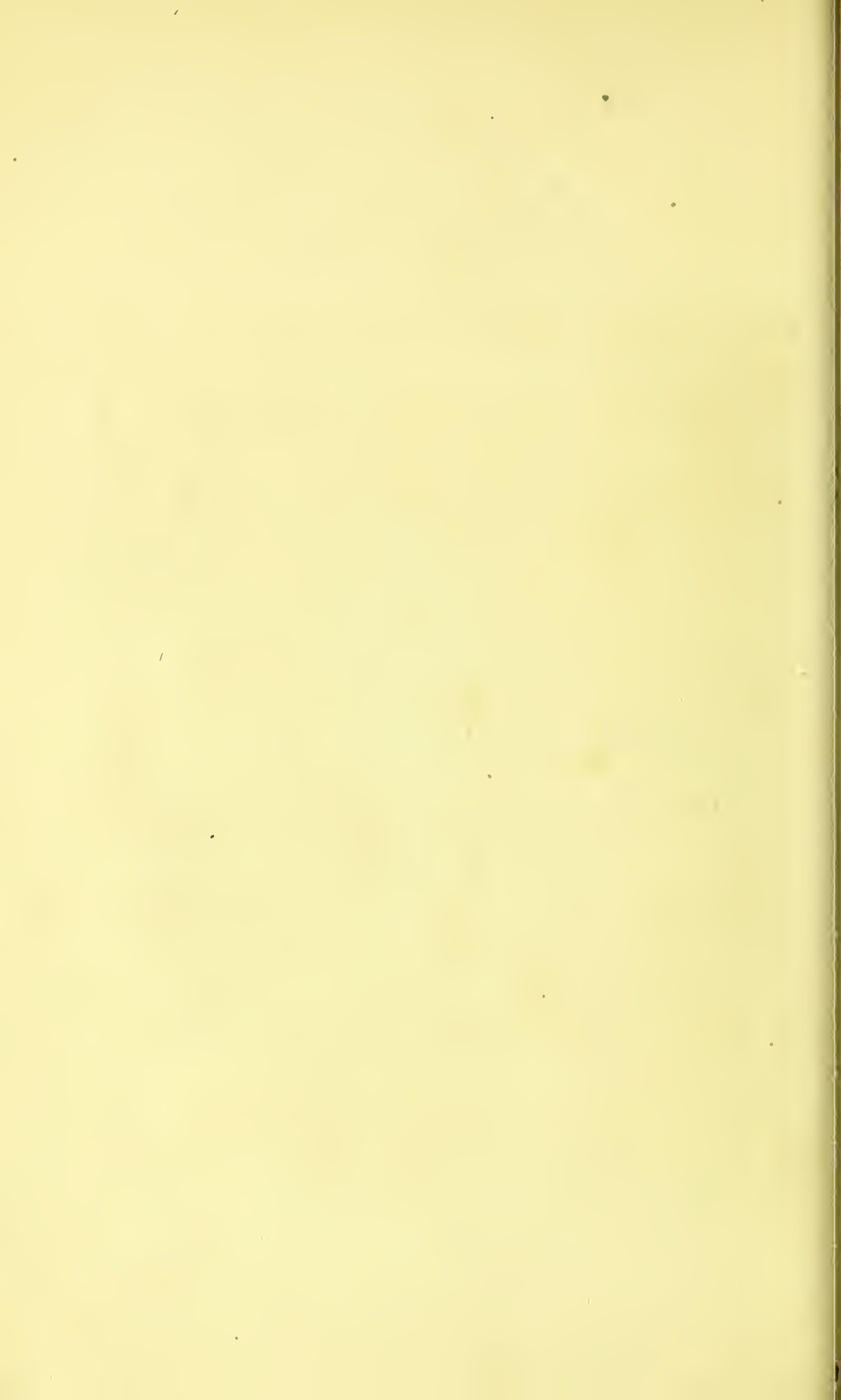


Plat. 1.



Charles Bell del.

John Stenart sculp.



CASE VII.

MARCH 20.

G. D——'s daughter, two years and a half old.

She is extremely stifled in her breathing, which is rather frequent; the expiration is performed as if the tube were shut up by a valve, and this forced back with a flap when the air returns from the lungs. There is no tumor in the fauces, no redness; her cough is very croupy and frequent; her neck is not swelled; her countenance is of a death-like paleness, and her extremities chilly; her pulse is very quick, but still firm and regular. She had a stool this evening.

This child some days ago, her friends say four or five, took the croupy cough, and for two days her breathing has been affected; but as she had some appetite for food, and drank easily, they apprehended nothing. The child was visited some hours ago for the first time. She seemed suffocating, and five ounces of blood were taken from her neck. Before the compress could be applied to the orifice, she nearly fainted; she then vomited very freely, and derived temporary ease in her breathing from the bleeding; but soon after the dyspnoea returned. The warm

bath was ordered, and a blister, which was immediately applied to the neck.

In addition to this, when I saw the child, I recommended an emetic, from a notion that the membrane of croup was formed.

MARCH 21.

I saw the child at eight o'clock this morning; she was writhing and twisting about, of an ashy paleness, and was just dying. The vomit brought away a quantity of mucus, but notwithstanding my injunctions, it was not kept. The first mouthful, which seemed like the white of an egg, she rejected with great violence. I think there is reason to suppose it might contain in it part of the membrane. The urine passed since last visit had a most copious sediment. The child died at nine o'clock.

DISSECTION.

Upon making the first incision in the neck, the fat and cellular substance resembled very much, in whiteness and transparency, that of the last patient. The thyroid veins were not peculiarly distended, but the internal jugulars were very turgid. The thyroid gland was large, and the lobes of the thymus gland extended upwards to the thyroid cartilage, in two distinct slips.

Although there appeared no active inflammation, yet the effect of an increased action was

very manifest, from the quantity of a gelatinous effusion which surrounded the lobes of the thyroid gland, and passed behind them round the trachea.

Upon lifting the sternum, the thymus, of a monstrous size, lay extended over the pericardium. The lobes of the lungs, which projected, were of a pale greyish colour ³. Upon raising them from the thorax, the posterior part was of a darker red, not, however, as if inflamed, but as if more gorged by the gravitation of the blood in the supine posture of the body after death ³.

Having taken out the trachea and part of the lungs, the trachea was opened upon the back part at the bifurcation; but here there was no membrane. The trachea was then slit upwards, and on approaching the back part of the great cartilages of the larynx, the membrane was found distinct, fully formed, but not so strong as in the last instance. It was of less extent, as

^{3 3} I suspect this appearance had led to an error in the first case described by Michaelis; for he says, “Pulmonum dextro æque ac sinistro in latere, facies inferior ac posterior colore insignis erat livido, unde ad inflammationem harum partium concludere fas est. Facies autem pulmonum anterior ac superior, naturali gaudebat colore.” P. 256.—And again, in the *Observations par M. Mabon*, “La portion des lobes du poumon qui, s’est présentée la première à la vue, lorsqu’on a élevé le sternum, étoit dans son état naturel.—Il n’en a pas été de même du reste du poumon. Il étoit rouge et engorgé,” &c.

well as possessing a less degree of firmness. A streak of the membrane passed down a considerable way, attached to the fore part of the trachea. In general, it has been observed, that the membrane extended farther down, and was firmer on the back and membranous part of the trachea.

The membrane, which extended about an inch and a half downwards from the glottis, was in a manner floating in a milky-like fluid, white and opaque.

Upon tracing the branches of the bronchiæ, there was no membrane; but in cutting into the substance of the lungs, a frothy mucus was observed in the minute branches of the bronchiæ.



Plate



W. H. ...

W. H. ...

EXPLANATION

OF

PLATE II.

The Trachea slit up on the back part from the Epiglottis to its division into the Lungs.

1. The EPIGLOTTIS.
2. The cut edges of the CARTILAGES.
3. The MEMBRANE adhering to the back part of the THYROID CARTILAGE.
4. The MEMBRANE gathered together, so as to plug up the TRACHEA.
5. A streak of the MEMBRANE continued into the right branch of the WINDPIPE.
6. The LEFT BRANCH of the WINDPIPE, the internal coat being very slightly inflamed.
7. The SUBSTANCE of the LUNGS cut into.

C A S E VIII.

MAY 14.

M. D——'s daughter, 18 months old, was the day before yesterday seized with a croupy cough. Yesterday, with the cough, she began to have much difficulty of breathing, which towards noon increased to a great height; and this symptom has not once intermitted since. Yesterday and this morning she had her usual appetite for food. At present she labours inexpressibly in her breathing; her nostrils are inflated; and every inspiration raises her chest from the bed. If she is at all fretted, in crying her voice is very stridulous, and then she takes the ringing cough. Her face is of a leaden paleness, her eyes are languid, and she is very lethargic. When she is lifted up, she struggles and tosses about till she again gets to lie down on her back, and then when her head is low, she appears easier, and is inclined to doze. She has vomited several times this afternoon. Her pulse is rather full and quick, and her skin warm; her bowels have been loose; her fauces are without swelling or redness; and there is no swelling in the neck.

The treatment in this case was similar to that already mentioned, only that I used no internal

medicines but an emetic and calomel. The child died in nine or ten hours after I first saw her.

DISSECTION.

During this dissection I was much annoyed by the jealous watchfulness of the attendants, so that the operation was hurried.

On the fore part of the neck there was nothing particular to be observed; there was neither swelling nor any appearance of inflammation; but upon making an incision, separating the larynx from the pharynx and root of the tongue, and then folding down the trachea and œsophagus, a viscid tenacious froth was seen to fill the upper part of the pharynx and opening of the windpipe.

Upon cutting out and carefully examining the trachea in its whole length, the inner coat was observed to be considerably inflamed. The epiglottis was inflamed, and somewhat tumid. The swelling of the epiglottis was not considerable, but it was red, and its vessels were distinct and turgid; and upon its concave surface films of a membranous crust adhered: When these were removed, slight ulcerations were observed on each side of the little ligament which runs down the middle of it. The membrane covering the cornua of the os hyoides and the thyroid cartilage was swelled and red, and had that purplish

or bluish cast, with lake-coloured turgid vessels, which would incline me to say that the inflammation was of an erythematous kind.

Within the cartilages of the larynx the membrane was distinctly formed, but irregular, perhaps displaced in some measure in the hurry of dissection. There was little inflammation lower in the trachea; and there was none of the membranous pellicles or crusts to be observed lower down than the crecoid cartilage; but the internal membrane had the vessels distinct, and slightly turgid.

I was not allowed to open the breast.

EXPLANATION

OF

PLATE III.

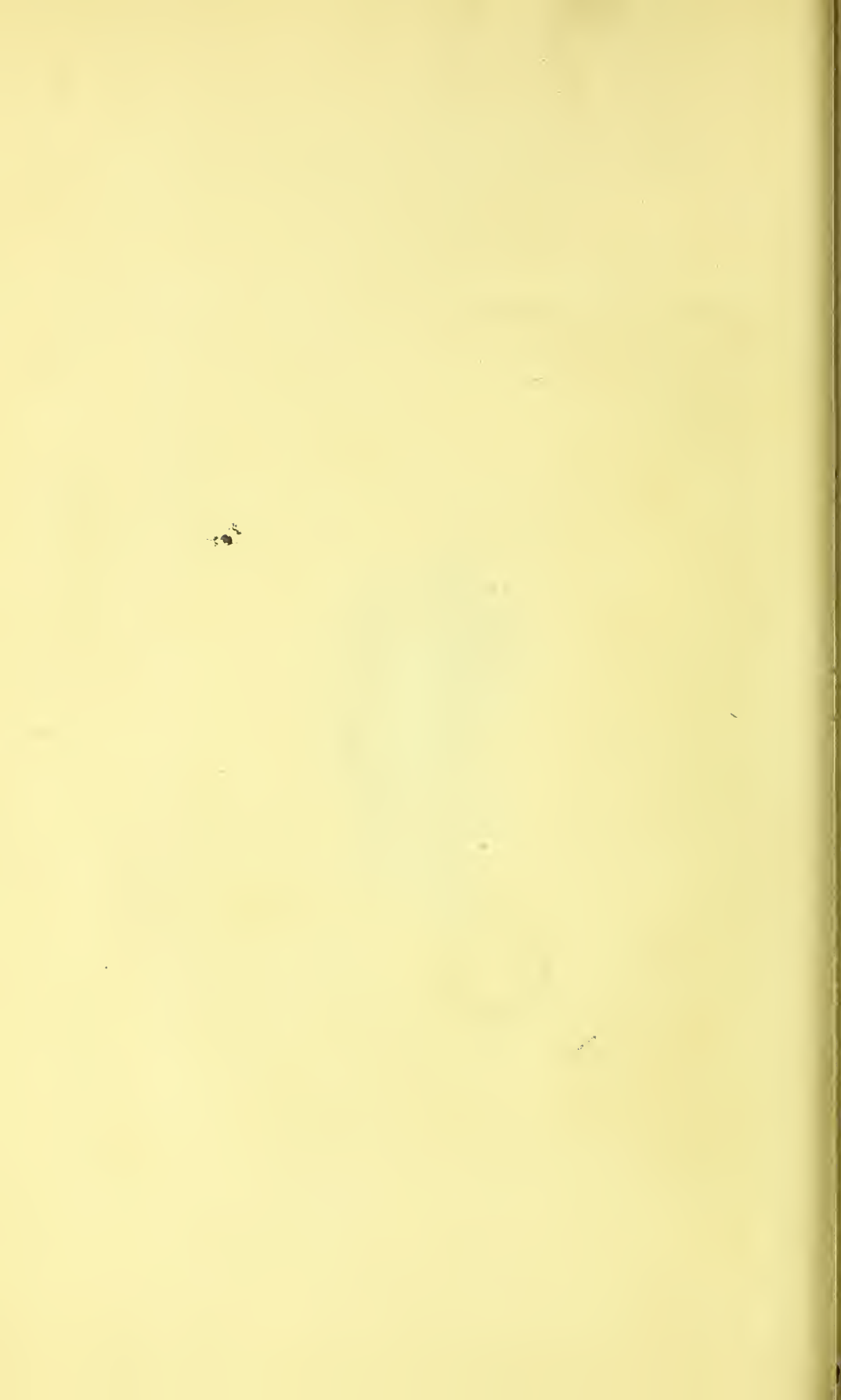
In this Plate the parts are presented to us as seen from behind, the Cartilages and membranous part of the Trachea being slit up. The appearance of the whole, however, differs essentially from that of Plate. I. Here the membrane formed by the disease is less perfect, being more in shreds and detached pieces, whilst the upper part of the Trachea is considerably tumified and inflamed. This Plate is indeed intended to show the parts in their inflamed state.

Plate, 3.



W. H. Holt

Am. Mus. Nat. Hist.



C A S E IX.

SUNDAY, JUNE 7.

A. R——'s daughter.

She has had catarrhal complaints since Sunday last, with a rough cough. On Thursday her breathing became affected in the manner it is at present, namely, frequent and laborious. During the night there is an aggravation of the dyspnoea. Her cough and her voice are croupy; her eye is heavy; her pulse is moderate in strength, and not much quicker than usual; she has no thirst; her appetite for food is natural; she is generally reserved, but sometimes amuses herself as if nothing were the matter; and is at no time fretful. The tonsils and velum are slightly inflamed; the submaxillary glands are full, but not painful. Her expectoration is copious; her urine is high coloured, depositing much sediment. The disease is well marked, but it has been less active in the attack than usual.

EVENING.

In the morning I ordered a vomit, which brought away a great deal of mucus; and she had afterwards leeches, and then a blister applied to her throat. After the vomit had ope-

rated, she had a grain of calomel, which has been repeated every two hours since. This medicine has procured her several stools. I think her breathing is more difficult now than it was in the morning, and indeed she has more pyrexia. I ordered the warm bath, and a continuation of the calomel every hour and half during the night.

MONDAY EVENING.

She has had 10 grains of calomel, but without any abatement of the disease. This morning she got another vomit, which caused the expectoration of much mucus, mixed with puriform flakes, resembling portions of the membrane. I ordered another vomit for this evening, and a continuation of the calomel.

TUESDAY.

The emetic had a powerful effect, bringing up a considerable quantity of pulmonary secretion. The child, however, died this morning.

She had taken 12 grains of calomel.

DISSECTION

Instead of examining the trachea by dissecting it from the neck and cutting it up upon the back part, it was determined to open it on the fore part, and to trace the diseased appearance through its whole length, and to follow its branches in the lungs.

When the integuments of the neck were dis-

fectcd back, though there did not any where appear marks of inflammation, there was a turgidity of the great veins, as is represented in the annexed drawing. This, however, was evidently occasioned by the difficult respiration affecting the circulation of the heart, the impeded action of the heart causing a remora in the cavas and right sinus.

Accordingly, upon opening the thorax, we found the right auricle and the superior cava turgid with blood, as if the irritability of the heart and general system had been gradually exhausted by the laborious forcing respiration through the tube of the windpipe, which was progressively diminishing in capacity.

When the trachea was slit up on the fore part, from the thyroid cartilage to the division in the lungs, the membrane appeared completely formed in all this length, and of a firmer body than in any of the cases which have been given. It was more delicate behind the great cartilages of the throat, was firmest about the middle of the neck, and again became more soft and liquid after the division of the trachea in the lungs; and gradually as I traced the bronchiæ, it lost its consistency. Although I observed a slight affection of the membrane of the bronchiæ, the adventitious membrane could be traced but a very little way into the lungs.

The lungs were distended with air in such a manner as if the air had escaped from the cells into the cellular membrane of the lungs. This I conceive to be the effect of the violent play of the lungs, and which must have obstructed the natural functions.

EXPLANATION

OF

PLATE IV.

To the annexed Engraving of this Case no letters of reference are required. The Integuments are lifted from the fore part of the Neck and part of the Sternum. The Veins of the Neck and the Right Auricle are seen very turgid with blood. The Trachea being slit up on the fore part, gives an impressive example of the danger of the disease.

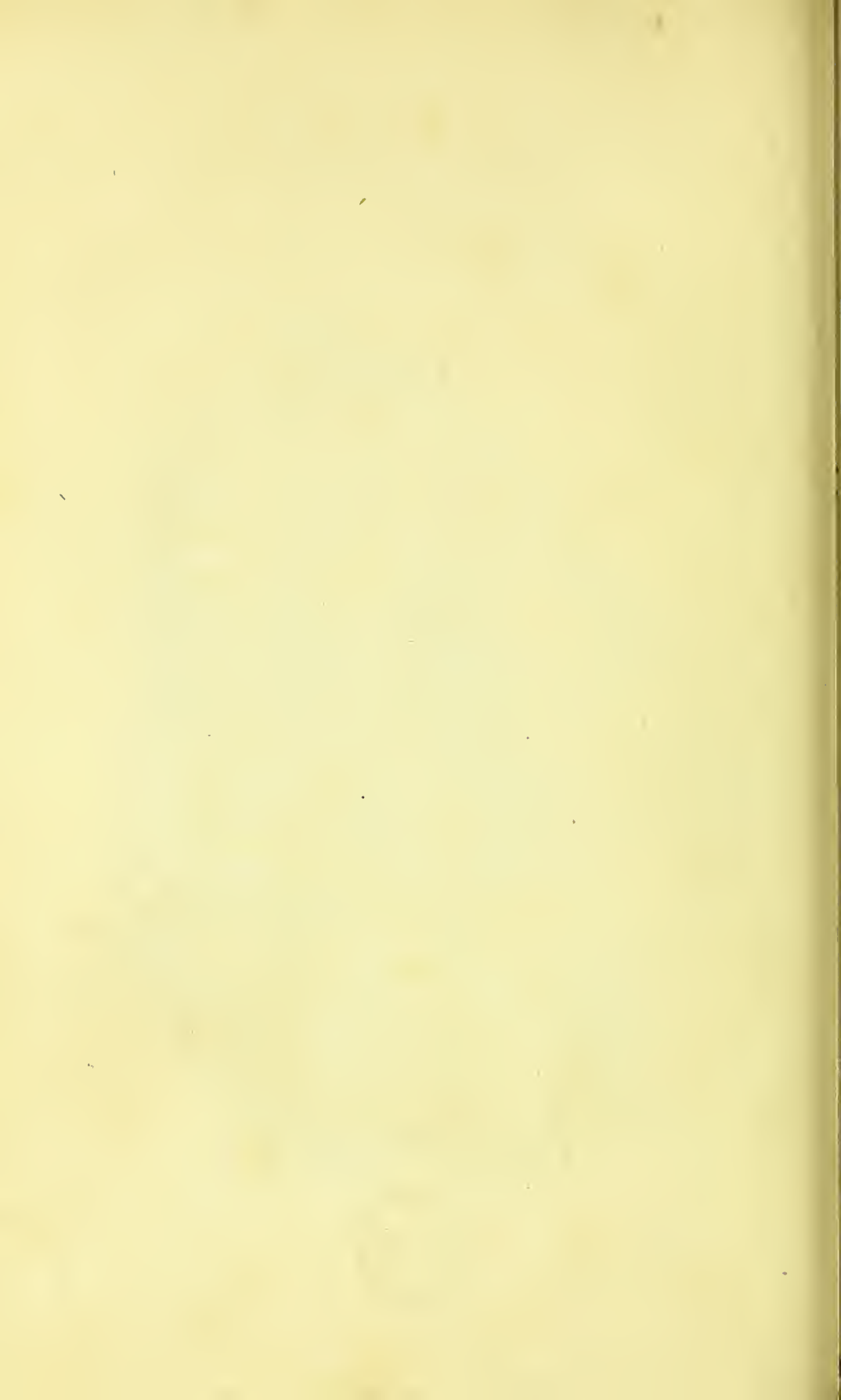
Plate 4



W. H. Wall, del.



J. G. Bennett, sculp.



CASE X.

“ Puer novem annorum, habitus corporis te-
 “ nuis delicatuli, adfectionibus catarrhalibus sæ-
 “ pe obnoxius, ceteroquin sanus, tempore ver-
 “ nali anni 1775 febricula cum levi tuffi et ton-
 “ fillarum tumore correptus est. Hunc mor-
 “ bum ab aere frigido vespertino, in quo ob-
 “ ambulaverat puer, ortum duxiffe ratus, potum
 “ theiformem calidum, pulveresque camphora-
 “ tos et linctum pectoralem præscripsi. Satis
 “ bene inde se habuit ægrotus, febris disparuit,
 “ tuffis metuit, tumor faucium fere evanuit.
 “ Cum vero nulla adesset expectoratio, hanc ut
 “ promoverem, oxymel squilliticum addidi linc-
 “ tui pectorali. Verum in eodem statu per be-
 “ nas septimanas remansit tuffis, ita tamen ut
 “ ægrotus genio puerili late indulgeret, cibos
 “ appeteret, nocturna quieta frueretur.

“ Neque febris sub eo tempore recruduit, ne-
 “ que respirationis difficultas, aliudve incom-
 “ modum supervenit. Quindecimo autem die
 “ accersitus res inveni quam maxime mutatas.
 “ Quippe puer moribundi instar facie pallida,
 “ oculis labiisque diductis immobilibus, cute
 “ frigido sudore perfusa, anhelitu difficillimo,
 “ stridulo, lento, respirabat. Pulsus parvus erat

“ et celerrimus. Verbo quovis momento mi-
 “ sellum animam efflaturam esse putabant ad-
 “ stantes. Unde vix obtinui a parentibus ut ve-
 “ nam fecari finerent. Quatuor sanguinis un-
 “ ciis absque levamine eductis, periculo magis
 “ magisque crescente, emeticum præscripti ;
 “ tartari nempe stibiati aliquot grana in aqua
 “ simplice soluta, refracta dosi porrigenda, do-
 “ nec inverteretur stomachus. Secundus reme-
 “ dii haustus, vomitum excitavit tussimque. Quo-
 “ rum unita vi, non sine summo suffocationis
 “ periculo ex faucibus protrusum forasque de-
 “ mum rejectum est concrementum membra-
 “ naceum, firmum, ramosum, totoque tractu
 “ cavum, arteriæ asperæ bronchiorumque con-
 “ formationem satis apte referens. Post singu-
 “ larem hanc excretionem, pauculas sanguinis
 “ guttas secum vehentem, cessarunt omnia, quæ
 “ infanti mortem minata erant symptomata, spi-
 “ ritum liberrime traxit puer, calorem natura-
 “ lem ciborum adpetitum, mentis hilaritatem
 “ recuperavit, lætusque cum parentibus lætis,
 “ ceu a morte ad vitam revocatus prandium ce-
 “ pit. Neque tamen restitutum sibi relinquere
 “ linctus camphoraceorumque usum ; suasi eti-
 “ am vaporis lenientis inhalationem. At breves
 “ atque deceptrices fuerunt illæ induciæ. Quip-
 “ pe tertio a dicta mutatione die respiratio de-
 “ nuo fit anhelosa, stridula, gallinæ gracillantis
 “ sono similis ; pulsu tamen non adeo depresso

“ et languido, quam in priori mali accessu.
 “ Hinc venam iterum secui, sed absque sensibili
 “ levamine. Circa vesperam, aucto suffocatio-
 “ nis periculo, tincturam ipecacuanhæ aceto scil-
 “ litico mistam ad excitandum vomitum propi-
 “ navi, et quidem cum successu. Alterum enim
 “ concrementum priori plane simile ejecit æger
 “ moxque sublata est spirandi difficultas.

“ Remanebat autem febris lenta, versus ves-
 “ peram exacerbans, sputum hætenus mucosum
 “ mutatum est in purulentum, accessit dyspha-
 “ gia, nec obstitit corticis Peruviani et aqua-
 “ rum selteranarum lacti additarum usus, quo
 “ minus sudores et diarrhœa supervenirent, vi-
 “ resque ægroti penitus exhaurirent. Sic deci-
 “ mo tertio post alteram rejectionem die ani-
 “ mam efflavit. Valde desideranti non conces-
 “ sum est cadaver secare, trachæque cavum in-
 “ spicere.”

EXPLANATION

OF

PLATE V.

The Case which this Engraving illustrates was kindly communicated to me by Dr. Rollo, Surgeon-General of the Artillery, after the foregoing sheets were printed off. It was a singular case, as occurring in an adult. He was a gunner, and had, previous to the attack of Croup, of which he died, suffered severely from a catarrh. For the drawing I am indebted to my ingenious friend Dr. Macculloch. It is one of the best representations I have seen of the Membrane taken out from the Trachea.

EXTRACT FROM THE NOTE OF THE DISSECTION.

The Thoracic and Abdominal Viscera, *in situ*, appeared natural; there was rather more fluid in the Cavity of the Chest than usual, and of a brownish colour; the posterior and inferior portions of both Lobes of the Lungs had evident marks of inflammation, but more particularly the latter; the fluid found in the Cavity of the Thorax coagulated when exposed to heat; the



the portions of the Membrane which were in the branches of the Trachea.





Tonfils were enlarged, more particularly the left; and both Tonfils were covered with a thick membrane of coagulable lymph. About three inches of the Trachea from the Larynx was taken off; it was covered with the same kind of membrane, and had the same appearance as in cases of Croup. Upon a farther examination of the remaining portion of the Trachea, we found a continuation of this membrane, but of a firmer texture than that in the superior part, accompanied with an appearance of inflammation of the natural membrane of the Trachea and its divisions; and this membrane, as well as the inflammation, pervaded the smallest ramifications of the Bronchiæ, which upon pressure were found plugged up with a bloody frothy kind of matter. Upon opening the Heart, polypi and coagulable lymph were found in the right Auricle and Ventricle.



A P P E N D I X.

IN Newhaven, on the 30th of May last, I saw a boy of twelve years of age, whose breathing was very difficult ; it was attended with a sense of constriction at the larynx ; the inspiration was frequent and croaking, and his voice was rough and harsh : His breathing was so alarmingly difficult, that, according to the custom of the common people, all the women living in the neighbourhood were assembled to witness his death, which was hourly expected. His pulse was quick, but not strong ; and he was much flushed. Since the attack commenced, he once or twice, unexpectedly, became easy, and continued so for a quarter or half an hour, and then the symptoms again returned in all their violence. In these paroxysms he had many belchings, but I could not learn whether they relieved him.

His illness came on early this morning ; and it was imagined to have arisen from his having gone off in an open boat yesterday, which was a very cold day, to fish.

I ordered him an emetic immediately, which sensibly relieved him. He was blistered, and he

continued getting better under the use of a strong solution of assafœtida.

This I conceived to be a case of the acute asthma of Millar, and under this impression I treated it successfully as a spasmodic disease. I have never seen another instance of the disorder ; but from its supposed identity with croup, I shall shortly point out the distinctive symptoms.

In croup, the cough, which I have so often noticed, is constantly ringing in our ears ; in acute asthma there is little or no cough. In croup there is very seldom any remission ; the remission in acute asthma is one of the most striking phenomena of the disease ; and it is attended with some evacuation, as belching, vomiting, or purging. In croup the pulse is strong, the urine is high coloured, the fever is much greater, the voice is sharp and small ; in acute asthma, the pulse, though perhaps equally quick, is less full, the urine is limpid, and the voice is croaking and deep.

By attending to these symptoms, we shall be able to determine the question of bleeding, which is safety in the one instance, and supposed to be improper in the other. When there is sufficient time deliberately to consider the progress of croup, it is hardly possible that it should be mistaken for any other disease.

It may not be amiss to state the error in the genera morborum, which gave rise to this diagnostic.

As synonymous to CYNANCHE TRACHEALIS, Dr. Cullen (*Synop. Nos. Meth. G. x.*) mentions, SUFFOCATIO STRIDULA, *Scotis* THE CROUP, *Cl. Home* on the Croup.

ASTHMA INFANTUM, *Millar* on the Asthma and Chincough.

ASTHMA INFANTUM SPASMODICUM, *Russ*, Dissertation, London, 1770.

CYNANCHE STRIDULA, *Crawford*, Dissert. Inaug. Edinb. 1771.

The first and last of these dissertations treat of Croup, the intermediate two of the Asthma Infantum, the disease which occurred to the fisherman's boy.

Dr. Cullen, by departing from his usual accuracy and discrimination, has obliged me, in the first paragraph of the Essay, to state precisely the nature of the disease of which I was about to treat, a thing in the present instance of the last importance in a practical point of view, and to define it from the morbid organic condition, rather than from the symptoms, which, in a regular book of nosology, is unquestionably the preferable mode. My definition, therefore, is to be considered rather as an enunciation of the subject; for had I not been compelled by

this mistake, I should not have thought it necessary to give any definition of a disease, which is particularly described in the next page. The advocates for the operation of bronchotomy, which, I find, is still recommended, will do well to attend to the distinction between the two diseases. I imagine I need hardly say, that in the asthma infantum there is no inflammatory membrane.

In the present state of surgery, I scarcely thought it necessary to add much in support of my opinion as to the unfitness of the operation of bronchotomy: But as I have been blamed for rejecting this operation in the cure of croup, I shall consider it in another point of view. At the same time I should hope, that what I have already said will have influence with most physicians.

Although in some instances, where the membrane has been formed and expectorated, and the child in consequence has recovered, the affection appears not to have extended much beyond the larynx ⁴, yet I am convinced, that in nine cases of ten, the immediate cause of death is not so much the narrowing and obstruction of the stream of air occasioned by the

⁴ This too must in a great measure be the case in the peculiarity explained in *p.* 22.

membrane ^s, as the puriform fluid with which the bronchiæ are filled; for in most of my dissections, the puriform fluid has been found so completely to gorge the lungs, that the air would have been met by this fluid, and prevented from finding its way into the air cells, even had it passed the larynx easily, or had the membranous effusion which lines the larynx been removed. This puriform fluid I conceive to be a mixture of the lymphatic effusion of the minute branches of the trachea, of the natural exhalation of the lungs, and of mucus. He who imagines that the disease is always confined to the larynx, takes a limited view of croup; for by continuous sympathy, or from the exciting cause acting as violently there as at the larynx, the inflammation often, perhaps always in some degree, extends to the more minute branches of the windpipe; and I have actually seen the membrane regularly formed in branches, not a line in diameter, which proves that inflammation had subsisted as violently in these branches, as it usually does in the larynx.

Suppose, then, in performing this operation,

^s In Case VIII. there was no mechanical obstruction in the trachea. It was indeed inflamed; but the immediate cause of death might be sought in the effusion of the lungs, and the general affection.

that the thyroid veins, and all the neighbouring blood-vessels, could be so commanded, that not one drop of blood should be poured out to embarrass the operator; that the membrane, as it lines the larynx, were extracted; and, to avoid any difficulty from the spasm of the larynx, that a tube were introduced into the trachea, and that the child were breathing through this tube, By what means could we promote the expectoration of the puriform matter which so generally fills the lungs?

Is it a consideration entirely to be overlooked, that the operation is to be performed upon an organ in a state perhaps of high inflammation?

It is alleged, that one child did escape from this operation ⁶. When the surgeons of former

⁶ *Burferius*, Vol. V. § ccccxxxvii. *Inft. Med. Præf.* Burferius, like every other system-maker, must depend upon the observations of other men for the greater part of the intelligence which he is to communicate; and accordingly he follows Michaelis (sequar Cl. Christ. Frider. Michaelium, qui hujusce morbi historiam præ aliis accuratissime conscripsit, § ccccxxiv.), who has in some measure made up for his want of experience in this disease by his industry. The imperfect case which Burferius gives from his correspondent Locatellius, cannot be admitted in evidence, until the history of the disease previously to the operation be known. That the impression made by this operation upon the mind of Burferius himself was very faint, may be inferred from the manner in which he proposes bronchotomy. “In extremo suffocationis periculo, sola tracheotomia, reliquis irritis spem aliquam facit quantum non ab omnibus probetur.” *L. c.*

times were performing operations for iliac passion, there may perhaps be an instance on record, where the patient has survived. But surely this would not be reason enough, why such an attempt should again be made. I must still maintain, that it becomes the surgeon, for the credit of his profession, to decline an operation so improbable, and which proceeds from a mechanical and contracted view of the disease.

Dr. Rollo's case, although in an adult, does not invalidate my opinion, that debility of the trachea predisposes to croup; for in his patient, the upper part of the trachea was previously reduced to a state of debility, by a severe attack of catarrh, a precursor to croup, which is daily observable in children.

Before concluding, I may observe, that, in

Were it judged right to perform this operation, a more hopeless way of doing it (so far as I recollect, for I have not the book by me), could not have been thought on. There was a transverse incision made between the second and third ring, and another between the fourth and fifth. Then there were two longitudinal incisions made, one on each side of the trachea, which joining the transverse ones at right angles, freed a quadrangular piece of cartilage two rings in length, and in all probability at least a third of the circumference of the trachea in breadth, which was removed.

I have known this operation performed in two instances, both of which were fatal, one of them under the most favourable circumstances, for the patient was an adult.

the second stage of croup, I have had no success in administering calomel, which I have done in many instances since the foregoing Essay was written; that my opinion of its virtues is diminished by an extended experience of its effects⁷. During the first stage, in violent at-

⁷ The praise given by some physicians to calomel I was at a loss to explain, when I found it accounted for in a paper on Croup, by Dr. Ferriar of Manchester (*Medical Histories and Reflections*, Vol. III.), which I lately read with more satisfaction than any thing that I have seen upon the subject. He observes, that “ children who are liable to attacks of the croup, are sometimes seized with the deep barking cough, which will increase to such a degree, as to excite much alarm, about the usual time of the dangerous exacerbation; yet it will decrease again, and at length go entirely off, without any remedies but common demulcents. Cases of this kind, I suspect, have been described as genuine pseudo-croup, and very trifling methods of cure have been recommended, in consequence of their apparent efficacy in the spurious croup, which always cures itself.” The spurious croup is that croupy cough which I have mentioned, *p.* 18.

The only expectation from calomel which occurs to me, is, that it will occasion a new action in the trachea, and thus prevent the disease from running its fatal course to effusion. In this view, calomel can be of no use in the second stage, where the inflammatory action is completed, and where our sole hope is from expectorants. In the first stage, I have given it as my opinion, that the way to succeed, is to endeavour to obtain a resolution of the inflammation; and indeed where there is nothing peculiar in an inflammation, this is a preferable design to that of inducing a new action in a part. The physician whom I have already quoted in this note, says, that the disease will

tacks, I should think myself criminal, were I to neglect blood-letting and the antiphlogistic regimen, in favour of any other measure ; for I am more and more convinced, that previously to the formation of the membrane, the disease is certainly to be cured by the means ⁸ which I

generally be fatal, if the alarming symptoms be not mitigated within the first six hours. To this I do not accede ; for I have more than once relieved children, where croup had come on alarmingly, by bleeding, on the morning after. But I may venture to affirm, that the disease, if not within the twelve or sixteen hours from the invasion of the alarming symptoms, will not be cured at all ; and this, doubtless, allows too limited a period for the influence of calomel, which, it is a common observation, is even more tardy in affecting the system of children, than that of grown people. However, should calomel be proposed on any other principle, I shall willingly give it every farther consideration. For the present, I must decline using it, unless in such a variety as is mentioned *p.* 28. *note 6.*

⁸ It was stated to me as a serious objection to the foregoing Essay, that, in the cure of Croup, I had brought forward nothing new. This it was not my intention to do. I found the practice unfix'd, when I first entered on the consideration of this disease ; and my object, in the first place, was to determine, for my own satisfaction, what course I should follow, under circumstances which occurred so frequently. My opinion⁸ is established, that this is an inflammatory disease, which, in the first stage, is to be treated by a strict antiphlogistic regimen, by emetics, and the warm bath : When violent, by blisters, large bleedings, and other evacuations, *p.* 24. *et seq.* In the second stage, by emetics, expectorants, and blisters ; and that, while we have agents so powerful, we should neither trust to calomel, asafœtida, nor any other drug which has been hitherto

have recommended. But when, by the paleness of the visage, the lividity of the lips, and the ghaftliness of the eyes; by the cough evidently becoming more stridulous, although less sonorous⁹; and by the changes which I have pointed out, we discover that the inflammatory stage is over; I have no objection to offer against calomel; so that it does not preclude the use of expectorants, among which I may rank medicated vapours; but I particularly allude to emetics, which I prefer to all other remedies in the complete stage of croup.

offered as a specific for croup. Should I have been successful in bringing other physicians to think that these are fair conclusions, my object is gained in its fullest extent, and my time has been as usefully employed, as if I had been experimenting in order to produce a new remedy, which, as is shown by daily experience, however excellent in the sense of the innovator, is generally found only to involve the physician in fresh doubts.

⁹ A hoarse, deep, barking cough is not so alarming as a shrilly crowing and stridulous one. The latter always characterises the second stage.

Speedily will be published,

ESSAY II.

This Essay will comprehend those diseases of the Intestines to which Children are more peculiarly liable. The morbid appearances, hitherto much neglected, have been carefully investigated, and in the Engravings which will accompany this Number, the most interesting of those appearances will be represented.

Edinburgh, November 1801.

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ESSAYS

ON THE

DISEASES OF CHILDREN,

WITH CASES AND DISSECTIONS.

ESSAY II.

ON THE

BOWEL COMPLAINTS

MORE IMMEDIATELY CONNECTED WITH THE

BILIARY SECRETION,

AND PARTICULARLY OF

ATROPHIA ABLACTATORUM,

OR

WEANING BRASH.

BY JOHN CHEYNE, M. D.

FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH.



EDINBURGH:

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AND LONGMAN & REES, LONDON.

1802.



DIRECTIONS TO THE BINDER.

Plate VI. facing	-	-	Page 9
Plate VIII. facing	-	-	49

The Binder is also requested, when he finds signature L done up with Essay II, to take it thence, and place it immediately after signature K of Essay I. to which it belongs.



INTRODUCTION.

TO understand the economy of the viscera of the abdomen, and, consequently, to comprehend the pathology or diseased state of these parts, it is of the first importance to attend to the connections of the hepatic system. The liver and stomach and intestines form the extremities of one system of vessels, the vena portæ. The vena portæ is aptly enough described as a tree, which shoots its roots widely amongst the membranous viscera of the belly, and extends its branches into the substance of the liver. The bile, which is the peculiar secretion of the liver, being collected from the extreme branches of the hepatic system, by the branches of the ductus hepaticus, flows into the intestines; and as it is their peculiar stimulus, it holds a sway over their actions, according to the quan-

tity and quality discharged into them. The excitement of the intestines, again, has a reciprocal influence upon the glandular viscera, and particularly upon the liver; because, on the excitement of the intestines, depends the velocity of the circulation through them; and the returning blood of the intestines is sent back, not into the heart, but through the vena portæ, into the liver. And thus, in an obvious manner, are the intestines and liver connected; namely, the intestines with the liver, by the biliary secretion, and the liver with the intestines and stomach, through the medium of the circulation of the blood in the vena portæ.

As I introduce the proper subject of this paper with some notices of those diseases of infancy which depend on the liver, it may be necessary to preface these remarks with a short statement of the change which takes place in the system of the liver after birth.

During the dormant state of the fœtus, if I may so express myself, whilst it remains in the womb, the functions of the several organs are unexercised, and the mass of blood adapted to the growth of parts is supplied by the mother. The organs, therefore, which in the adult are subservient to the supplying of the blood with nutritious matter, are unemployed in the fœtus. The stomach, intestines, and glandular viscera of the belly, have as little connection with the

economy as the undistended lungs; and thus imperfections in these viscera are attended with no obstruction to the system, until the child is born; as organic defects in the lungs, and in that part of the structure of the heart which is subservient to the circulation through the lungs, show themselves only when the lungs have assumed in part the function of the placenta.

After birth, a complete revolution takes place in the circulation of the blood through the organs seated in the abdomen. By the action of the muscles of inspiration, and the consequent distension of the lungs, a new route is opened to the blood flowing from the right side of the heart; and the united and forcible exertion of both ventricles, which was required for the extensive circulation of blood through the body of the foetus and through the foetal part of the placenta, is now divided; and the pulsation of the chord, therefore, becomes weak, and the function of the placenta is lost. The system of the child now depends on its own powers, and the secondary effect of the change of the circulating system falls on the abdominal viscera.

The chief effect produced on this part of the system is the interruption of the supply of arterial blood to the liver by the umbilical vein; for now all the large venous vessels of the liver come to be entirely supplied by the returning blood of the intestines, by venous blood, and by

blood which moves languidly through the viscus, owing to the limited source, namely, the veins of the stomach, spleen, and intestines, and the great comparative size of the veins in the liver.

Now only is the circulation, which is peculiarly adapted to the liver, established; now it is that it performs its function, and that stimulating bile is secreted. The effect of this is the application of a new stimulus to the intestinal canal, and a consequent evacuation of the mæconium by this natural purgation.

That, during the foetal state, nature seems careful of maturing and giving importance to the liver, is evident from its great size, which is unnecessary, except as a provision for early childhood.

From this view of the system in infancy, the importance of the healthy action of the liver must be acknowledged, and the following Essay will illustrate the baneful effect of its disorders.

ESSAY II.

ON THE

BOWEL COMPLAINTS

MORE IMMEDIATELY CONNECTED

WITH THE

BILIARY SECRETION,

And particularly of

ATROPHIA ABLACTATORUM.

WHETHER the introductory statement and physical connection will fully explain the sympathy between the liver and the intestinal canal, is a curious question; but it is sufficient for my purpose, that this sympathy does exist, and is so great, that the one organ cannot be disordered without a corresponding derangement being produced in the other. It is, therefore, a material object, in considering the intestinal diseases of children, to point out how far the liver is concerned in producing these diseases, in aggravating them, or in assisting in their cure.

The liver shows its healthy or diseased state by the nature and effects of the bile which it secretes. To adopt the arrangement of Bianchi, this secretion, in a morbid state, may be redundant, diminished or altogether obstructed, or depraved. In the diseases, of which I am about to treat, it will be found in all these states. In the disease, which I have termed the *Atrophia Ablactatorum*, in the first place, it will be found superabundant, and eventually it will appear to be possessed of unusual acrimony. In the *Icterus Infantum*, there is often a complete obstruction to the passage of the bile.

Taking these diseases in the order of time in which they occur, I shall first mention that species of jaundice which attacks infants a few days after birth. This is always an alarming disease; for when infants do recover, it is with great difficulty. It generally comes on about the third day after birth; for it is necessary that this time should elapse before the complete absorption, and subsequent deposition of the bile into the blood, can take place. It is attended with languor, flatulence, and bilious urine, and continues many days, or even weeks: Sometimes it goes gradually away, but generally ends in a fatal marasmus.

When this disease is fatal, it, in all probability, is so from an original malconformation in the liver; for we do not find, upon dissection,

that it is a disease of the hepatic or of the common ducts, which, though somewhat contracted, from the thickening of their coats, are always pervious. The malconformation is probably an impermeable thickening of the beginnings of the hepatic duct, or, as they are called, the Pori Biliarii.

This disease has been supposed to arise from an obstruction of the biliary ducts forcing the bile back upon the liver; the obstruction being occasioned either by meconium, by mucus, or by viscid matter clogging the ductus communis; or by the milk coagulated in the stomach or duodenum¹, distending them so as to make them press upon the duct. On such slight causes may perhaps depend that species of jaundice described by authors², which disappears in a few

¹ Dr. Heberden, whose opinion is always entitled to the utmost deference, says, "That it has been supposed that an infarction of the duodenum may be great enough to hinder the efflux of the bile; but this may be questioned, if we reflect, that the duodenum has seldom any solid contents in it, and that if it should be so plugged up by them, or compressed by the other intestines, as to hinder the passing of the bile, it would, for the same reason, be incapable of admitting any thing into it from the stomach, which is a supposition hardly countenanced by experience." *Medical Transactions by the College of Physicians of London*, Vol. II. p. 129.

² "L'observation demontre qu'il existe une difference tres-remarquable chez les divers enfans attaques de la jaunisse apres la naissance. Quand elle est legere, elle se dissipe d'ellememe,"

days, without hurting the child. But the fatal jaundice, such as is described below ³, is not to

&c. *Chambon*, Tom. I. p. 272. No doubt there is a slight species of jaundice which goes off in a few days; but then the skin is of a reddish and not very deep yellow; but when it is of a deep saffron colour, we should be prepared for a very obstinate disease.

³ CASE I.

MAY 10.

G— H—'s daughter, five days old, was remarkably stout and healthy, when born; but, on the third day after birth, her skin became jaundiced. She took the breast very well before last night, when, from uneasiness, she ceased to suck; but she has returned to the breast again. She appears to be very well in every respect, but that her colour is jaundiced, and she has occasional fits of pain.

MAY 18.

The skin continues fully as deep as it was, and the child is becoming soft and emaciated; her stools are white, and like putty, with some streaks of bile in them; her bowels have been kept open by a weak infusion of fenna; her urine stains the linen very deeply. She sucks freely.

MAY 21.

There is no change in the jaundice; her stools and urine are much like what they were. Last night she had a slight bleeding from the umbilicus, and she is plainly getting weaker.

MAY 22.

Although the ligature fell off on the sixth day from birth, there was a great hæmorrhage from the umbilicus, and the child died this morning in consequence of it.

be removed by emetics, gentle purgatives, and the warm bath, the natural remedies for an obstruction in the ducts. I believe it to be an original and incurable malconformation in the li-

DISSECTION.

Upon opening the body, the first thing done was to examine the state of the vessels of the umbilical chord, as I thought in this case that it was not improbable, that the liver being affected, the bleeding might have proceeded from the vein; but I found it empty of blood; and although there seemed to be no obstruction to the probe from the navel into the vein, it did not appear that the bleeding had come from this source. I traced the grumous blood from the centre of the navel along the arteries, which were also open.

The intestines had no degree of transparency, but were of a milky colour, tinged with a delicate yellow, from the bile in their coats, not in their cavity. The stomach was very much distended. The glands of the mesentery were larger than they should be, and white, compared with those of adults.

The liver was full and firm, and of a dark green earthy colour. The gall-bladder was quite empty and contracted, so that it had sunk into the fissure of the liver, and only a small part of its fundus appeared. Within it there was a small soft mass, of a dark colour, and of the size of a grain of barley. The ducts also were contracted, firm, white, and like an artery, and, although pervious, contained no bile. The opening into the gut was perfectly free to the probe.

When the substance of the liver was cut into, this appearance of firmness of the ducts was still discernible.

The bleeding proceeded from the unhealthy change produced in the blood by the reception of the bile into the mass of fluids.

ver. It is a disease peculiar to some families. I have known in one family two children successively die of this disease; and there is a striking confirmation of this remark in a history related by Mr. Pearson, where ten of eleven children died of this species of jaundice, the eleventh having died of jaundice at six years of age ⁴.

EXPLANATION

OF

PLATE VI.

- A A A, The INTEGUMENTS of the BELLY laid back.
 B B, The STOMACH very much distended.
 C, The DUODENUM.
 D, The COLON.
 E, The MASS of SMALL INTESTINES.
 F, The LEFT LOBE of the LIVER, which, in the Fœtus, lies much in the LEFT HYPOCHONDRIUM.
 G, The LOWER SURFACE of the RIGHT LOBE.
 H, The LOBULUS SPIGELII.
 I, A SMALL PART of the FUNDUS of the GALL-BLADDER projecting from the FISSURE of the LIVER.
 K, The DUCTUS HEPATICUS.
 L, The DUCTUS CYSTICUS. These two Ducts are not particularly small, but they are thick, white, and firm in their coats.

⁴ “ Mrs. J. had been the mother of eleven children, on
 “ nine of which the jaundice appeared a few days after they

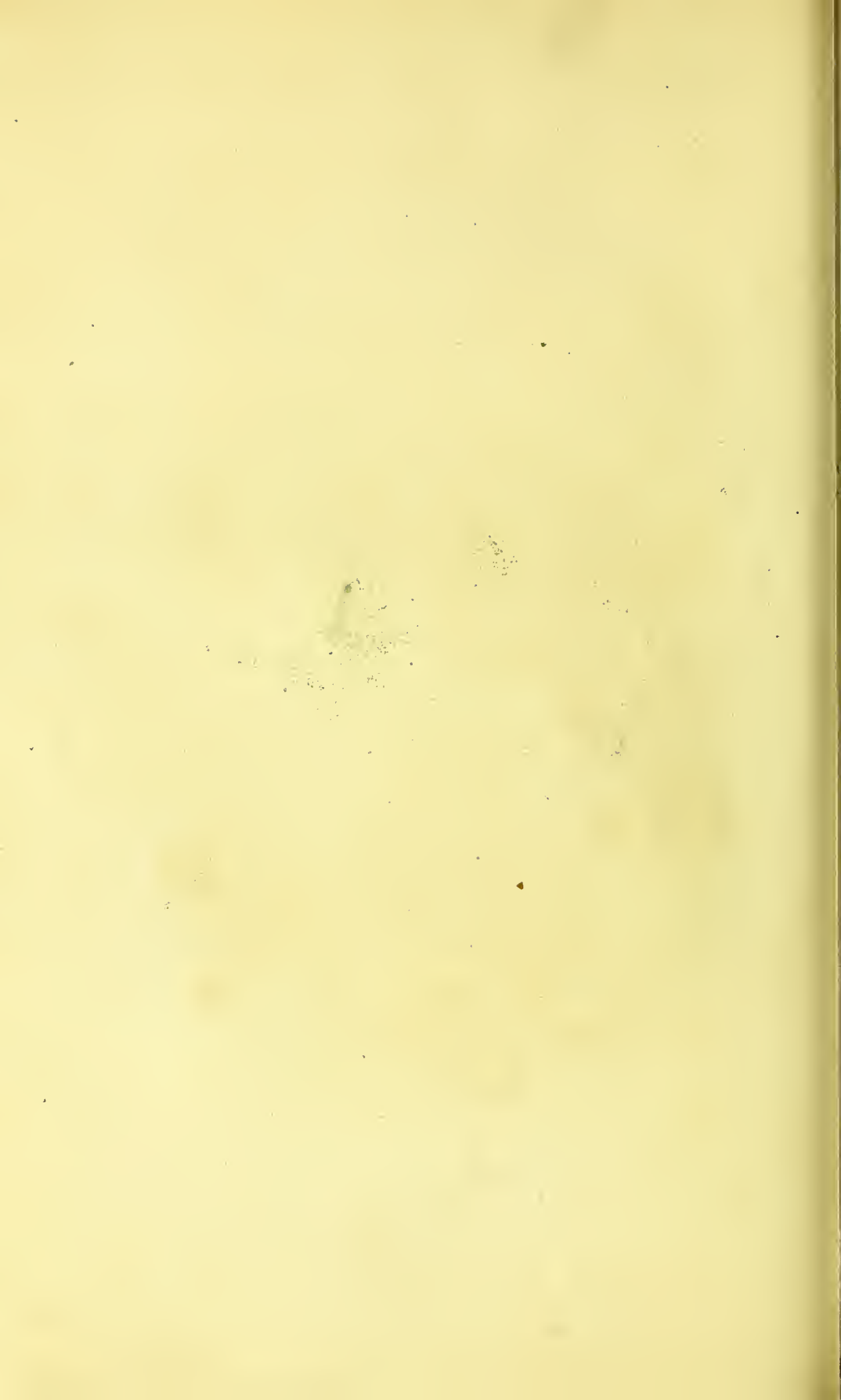
Plate V.



Drawn by Charles Bell

Engraved by J. Smith





As an infant cannot express his peculiar feelings of uneasiness, it is only by the deep colour

“ were born, and they all died within the period of a month after their birth. The tenth child lived six years, was then afflicted with the jaundice, and died. In May 1796, Mrs. J. was delivered of her eleventh child; on the third day after its birth, the skin became yellow, and the child was at the same time remarkably torpid and sleepy, and seemed to be slightly convulsed. On the following days, the colour of the skin often varied, being sometimes of a deeper yellow, and at others regaining its natural colour. The child continued, however, in the same languid and almost insensible state, but received nourishment, and sucked the breast of its mother, till within a few days of death, which took place on the ninth day. I opened the body of this child the day after death, and shall now describe the appearances on dissection.

“ The skin had nearly lost its yellow colour, and the child did not appear at all reduced by the disease.

“ The liver was almost twice its natural size; the whole concave surface of the right lobe had a livid appearance; but this dark colour did not penetrate above a line or two, and the internal surface was found and healthy. The convex part of the liver was of the natural colour and firmness, except on the margin of both the lobes; there the thin edge exhibited a highly injected appearance; the redness was, however, less vivid and remarkable on the left lobe than on the right. There was a slight adhesion of the lower part of the right lobe to the peritoneum. The gall-bladder was nearly filled with bile of a deep yellow colour, and its ducts were permeable. The heart seemed to be larger than common, and the blood-vessels on its surface were remarkably turgid. The right auricle was distended with blood, and the pericardium contained about a table-spoonful of water,”
&c.

of the skin and of the urine, the continuance of the illness, and the appearance of decay, that we can judge of the violence of this disease. I doubt much whether any thing beyond assisting the breast-milk by a gently laxative medicine ought to be attempted; or perhaps frictions of the belly might be useful. At all events, these things, together with an emetic, are suited to the milder kind of jaundice, and are never to be neglected, when there is reason to suspect an interruption to the free passage of the bile.

The liver appears also in the early months of childhood to be exposed to another derangement of function, which shows itself in a discharge chiefly bilious. When this discharge is merely a purging, it is called by the nurses *The Green Scour*; but it is still the same disease when accompanied with vomiting. When the cause of it is violent, or the child of a very irritable constitution, it is often ushered in by convulsions^s, and, during the fit, the child generally

^s In March and April last, many young children were attacked with pulmonary inflammation. It was so prevalent, that I attended above fifty cases. In many, convulsions were the first symptom. This would not happen once in a thousand instances of the same disease in the adult system. In a fever which was epidemical among the children at Hampstead in August and September 1776, Dr. Armstrong observes, that most of the children who took the fever were threatened with fits, and some had slight convulsions. The convulsions, which

passes a quantity of green excrement. There is always a great deal of fever, with convulsive startings; a twisting of the limbs from gripes, and screaming. In the interval between the convulsions, there are partial spasms of the face, about the eyes and mouth; and I have not a doubt that children are often carried off in these paroxysms. But this disease, sometimes so violent, begins at other times more mildly; and it is the milder attack which in general is the more tedious. It becomes a chronic diarrhœa, with the same kind of dejections, green, and frequently four and curdy, and accompanied with a retching, irregular fever and wasting of the body.

This disease is occasioned either by the child's diet being offensive to the stomach, or by cold. Panada, with too much sugar, the milk of a bad and negligent nurse, who indulges in heating liquors or high seasoned dishes, or of a nurse who has had a sudden fright, or who has menstruated, are very frequent sources of this

often arise from slight derangements in the intestines, and at the beginning of acute diseases, mark a greater degree of irritability, which is the chief difference between the infantile and adult constitution, and show the former to be what M. Baumes calls *Un melange singulier de spasme et de debilité*. Before the various animal functions are established in their regular series by habit, the constitution is susceptible of every impression, and hence arises the irritability so peculiar to infancy.

disease. It appears so immediately after the application of the cause, that it bears considerable resemblance to the cholera crapulosa in adults; for in both diseases the correspondence between the stomach and liver gives rise to the first step in the cure, assisting to expel the noxious matter, by adding to its stimulus that of an increased quantity of bile, which, as it has been observed, is probably better fitted to be a stimulus to the intestines, from its hurried and imperfect secretion.

A disease similar to this I have seen in England, occasioned by improper food given to children brought up by the hand. It is very destructive; but it is not to be met with in Scotland, where fortunately this unnatural practice does not prevail.

This disease is, in the violent attacks, to be cured by the warm bath, by vomits and cathartics, especially cathartic glysters; and should the disease, or any symptom of it denoting great irritation, continue after the full operation of these medicines, we must have recourse to opiates and testaceous powders; but we must be cautious in giving opiates ⁶, until the purgative

6 CASE II.

JUNE 12.

Mr. S——'s child, nine months old, the night before last took a violent purging, was restless and very fretful, and would

medicines have operated. This observation may be supported by the authority of Harris, whose opinions are generally founded on experience. "Diarrhœa infantum ab orgasmo humorum in intestina delabentium, vel a turgescentia illic bilis cum acido prædominium habente semper profluens, neque astringentibus proprie dictis, neque narcoticis est cohibenda." *Harris de Morbis Acutis Infantum*, p. 30.

not sleep. Last night, the mother, to alleviate these symptoms, and lull the child, gave her a large dose of syrup of poppies, which not only set her asleep, but stopped the purging. The child slept till mid-day. Upon awaking, she vomited a great quantity of bile, and soon went to sleep again; but she awoke now and then sick, and the vomiting continued quite bilious. She is easily disturbed, and has frequent startings, and a great deal of fever.

The mother, intending to wean this child, had fed her the day before yesterday with a quantity of strong beef-tea, and then had allowed her to suck the nurse in the evening, which she did very greedily. Moreover, the nurse had menstruated a day or two before. The child was in a fair way of recovering from this mismanagement, had the purging been allowed to continue for a little while longer; but, instead of this, the purging was stopped, and the bile poured into the intestinal canal, until the accumulation of it brought on the sickness and fever.

JUNE 14.

This child was relieved by an emetic of ipecacuan wine and a purgative glyster, and to-day, by continuing to take a weak infusion of fenna, she is nearly recovered.

THE disease which I am now to consider, and which is the chief object of the present paper, is somewhat allied to the last in its nature, and is vulgarly denominated in this part of Scotland THE WEANING BRASH⁷. It is one of the most fatal of the diseases of children, and, as far as I know, it is overlooked by those physicians who have made these diseases their study.

It is an atrophy, the consequence of weaning children too suddenly at an unfavourable season of the year.

This disease sometimes comes on two or three days after weaning; frequently not for three or four weeks; sometimes not before five or six weeks have elapsed.

The first symptom is a purging, with griping pain, in which the dejections are usually of a green colour. When this purging is neglected, and, after continuing for some time, there is added a retching, with or without vomiting;

⁷ It is hoped that the nosological name which I have given to weaning brash (*viz.* Atrophia Ablactatorum), as a literal translation of the vulgar one, and as placing this disease under the genus Atrophia, which, I presume, is its natural situation, will be deemed unexceptionable. Atrophia is the second genus of the third class of Cullen, who defines it, "Marcor et asthenia, sine pyrexia hectica." By Sauvages, in whose very useful and comprehensive system of nosology it will be found as the third genus of the tenth class, it had been defined, "Macies sine febre."

when accompanied by vomiting, the matter brought up is frequently coloured with bile.

These increased and painful actions of the alimentary canal, produce a loathing of every kind of food, and naturally are attended with emaciation and softness of the flesh, with restlessness, thirst, and fever.

After some weeks, I have often observed a hectic blush on the cheek; but the most characteristic symptom of this disease, is a constant peevishness, the effect of unceasing griping pain, expressed by the whine of the child, but especially by the settled discontent of his features; and this expression of discontent is strengthened towards the conclusion of the disease, when the countenance has shared in the emaciation of the body.

In the progress of the disease, the evacuations from the belly show very different actions of the intestines, and great changes in the biliary secretion; for they are sometimes of a natural colour, at other times slimy and ash coloured, and sometimes lienteric.

Towards the end of the disease, the extremities swell, and the child becomes exceedingly drowsy; but these I rather conceive to arise from debility, than to be pathognomic symptoms. It is remarkable, in the advanced stages of the disease, that the purging sometimes ceases for a day or two, but without any amelioration

of the bad symptoms ; nay, I think that children decay even faster than when the purging is most violent.

The disease seldom proves fatal before the sixth or seventh week ; and in this short time I have seen the finest children miserably wasted. I have seen, though rarely, a child recovered after the disease had continued three or four months ; and again, I have seen the disease cut short by death, in the second, third, or fourth week, before it had reached the acme ; the sudden termination having been occasioned by an incessant vomiting and purging, or by convulsions, from the immense irritation in the bowels.

The disease is more frequent in children who have been weaned before the eighth or ninth month, and in particular, in those who, in consequence of some accident happening to the nurse, have been weaned abruptly.

I have not been able to determine what temperament is most peculiarly liable to this disease ; but, without meaning to insinuate any necessary relation, I think it appears most frequently in those children of a lax fibre, whose constitutions, at a more advanced stage of life, might be supposed liable to the attack of strumous disorders.

This is a disease of the autumnal months. I seldom, comparatively speaking, have seen it

commence before the solstice, nor after the end of the year ; and I suspect that it is most general in sultry seasons.

As it will presently be shown, this disease gives origin to a great change in the glandular system of the mesentery, and this explains how it should happen, that after it has been removed, either by medicine, or by a proper regimen, and the healthful exertions of a good constitution, it is very apt, after slight errors in diet, or from cold, to return, even after the lapse of months. A person who knows this disease, will often be able to recognise it in the very obstinate and baffling complaints of the bowels, which children have from the beginning of the second to the end of the third year.

At the time when weaning brash comes on, the teeth are usually appearing ; and, from a common notion, that a flux is wholesome during teething, the disease is sometimes allowed to make an irremediable impression on the constitution, before the physician is called.

My attention was very early directed to this disease ⁸, from finding that it had an appropri-

⁸ It may be asked, How happens it that a disease which occurs so frequently should not have been frequently described ? It is because we have not been favoured by writers on the diseases of children, with individual histories, or cases, as they are called. In my opinion, these constitute the most important

ate name among the vulgar, and yet that it was not known to those physicians whom I consulted respecting its nature. Some of them had observed a purging as a very common consequence of weaning; but they supposed that it arose from teething: Others told me, that it arose from a mesenteric enlargement in scrophulous children: And until I could satisfy myself by dissection, I rested on this latter supposition.

I was the more inclined to this opinion, in consequence of having observed a scrophulous enlargement of the lymphatic glands in the neck, and a scrophulous suppuration in the

part of illustration, in explaining the nature of a disease; for I have always found it more satisfactory to read a case, well and clinically taken, than the most elaborate general history of the symptoms of a disease; a detail which, however accurate, does not fix the attention, and is useful only after the disease in question is understood, from having seen or read of examples of it. The obscurity and difficulty attending the diagnostics and treatment of the diseases of children, proceed from this more than from any thing, that the writers on these diseases have hardly one case from the beginning of their books to the end. Surely the infancy of the patient does not prevent an accurate and full case from being taken? Should the student wish to attain an early knowledge of this branch of his profession, he will find nothing so useful as the keeping of case books for the insertion of every important variety of disease.

There are indeed some notices of weaning brash; but they do not identify it as a particular disease; at least, I should not have discovered them as such, had I not been reading expressly for the subject.

back, in two children who at the same time had weaning brash.

The safest foundation for reasoning on the nature of diseases, is laid by anatomical investigation⁹, and, with little exception, it is the only one upon which I shall rest in these dissertations. It was adopted first of all by Glisson, in his excellent history of rickets; and it is much to be wished that succeeding physicians had followed him more closely, not only in treating of the diseases of children, but in treating of all diseases which have in their beginning increased actions of the circulatory system. With this conviction, I resolved not to indulge in any speculation upon the proximate cause, until I could procure a dissection, wherein might be displayed the morbid effects of this disease; and, in the mean time, I was satisfied with observing and making out a history of the symp-

⁹ Had it been more fully adopted, Cowper, the anatomist, would have had less occasion to exclaim, with so much indignation and justice, "That the advancement of true knowledge is sadly retarded, by the general opinion, that the senses are mean and ignoble, and that abstracted contemplations are the perfections of human nature; and so it comes to pass, that mens minds are fed with shadows and chimeras, instead of substantial knowledge, which is only from the physical examination of things by sense and experiment."

"Rien n'intéresse que ce qui est vrai, et rien en médecine, n'est vrai que ce qui a l'expérience et l'observation pour base."

toms, as they appeared in a variety of cases which I attended in the years 1799 and 1800.

The first dissection which I had an opportunity of making of a child who had died of weaning brash, did not instruct me in the true nature of the disease; for the mesenteric glands were considerably enlarged and inflamed, and I still imagined that their affection might have occasioned the purging and marasmus. But in prosecuting my research, I was convinced, that the disease was an undescribed one; and that although there might, in some instances, be mesenteric obstruction, it was not necessary to the disease; that it was the effect, and not the cause of it.

I observed, in every instance, that the intestinal canal, from the stomach downward, abounded with singular contractions, and had in its course one or more intus-fusceptions; that the liver was exceedingly firm, larger than natural, and of a bright red colour, and that the enlarged gall-bladder contained a dark green bile. In some dissections, the mesenteric glands were swelled and inflamed; in others, however, they were scarcely enlarged, and had no appearance of inflammation.

These contractions and intus-fusceptions †

† Strangulated intus-fusception is a very fatal disease to infants on the breast, which is proved by the many preparations of this nature found in every extensive anatomical museum.

were entirely of a spasmodic nature, as in the latter the contained part of the gut was easily disengaged from that which formed its sac; and in no part of the entanglement was there adhesion, or even the mark of inflammation; and the contracted portions of the intestine were again permanently dilated, by pushing the finger into them.

These appearances lead me to imagine, that the weaning brash, in its confirmed state, is imputable to an increased secretion of acrid bile, or rather to the morbid state of the liver, which occasions this; of which, however, I am afraid to attempt the explanation. It is proved,

It is often found, in the dissection of infants who die convulsed, or in great pain, that there are those temporary intus-susceptions, the effect of spasm, which I have described as constantly occurring in weaning brash; and it may be inferred, that they are by no means rare in many disordered states of the bowels. Should the irritation in the bowels be so great, as to occasion any inflammation at the time when this temporary intus-susception exists, it is highly probable that the continued stimulus of improper aliment acting upon the inflamed intestine, may, by increasing the irritation, assist in converting this occasional intus-susception into a permanent and fatal volvulus. It has always appeared to me, upon this view, that the cathartic medicines usually given by the mouth in iliac passion, as stimulating the upper or contained part of the gut, must be attended with the worst effects, by increasing this inflammation, and confirming, instead of removing, the strangulation; yet I have known it to be the first thing done, to give brisk, or, as they are called, drastic purgatives, which were continued during the whole progress of the disease.

that there is an increased quantity of bile in the intestines, by the green dejections which are frequent in the beginning of the disease, and by the bilious vomiting.

Perhaps the affection of the liver may be explained in this way. The breast milk is a mild food, adapted to the powers of the child; I shall not say to the weak powers of digestion in the child, but rather to the peculiar powers and properties of the secretions. When the child is weaned abruptly, and put upon common food, this becomes too violent a stimulus to the intestines. Between the liver and intestines there is the most intimate relation. This excited state of the intestines causes a discharge of bile into them, which increases the stimulus, and assists in maintaining a purging. Had the original cause been accidental and transitory, the bile, like the operation of a smart purge, would have thrown out the offensive matter, and cured the complaint; but crude unfit food being still poured into the stomach, the disease must proceed. It is probable, therefore, that, in the first instance, a redundant secretion of the bile, which may also be an acrid and imperfect one²,

² In treating of cholera morbus, Dr. Saunders says, "It seems probable, from the quantity secreted, and the rapid manner in which it is poured into the duodenum, that there is not time sufficient for a perfect secretion. The varied


originating from an irritation of the stomach, is a salutary exertion of the constitution, to remove the cause of the irritation from the intestinal canal. But I think it likewise probable, that the frequent repetition of this effort brings the liver into such a state, that it cannot return to the performance of its ordinary or natural function, when the demand for its unusual action ceases; and it is in this manner that the disease may continue, after the original stimuli have been removed, by again putting the child upon a proper diet. It may arise partly from the remissness of the nurse, and from a relaxation in that care which perhaps prevented the weaning brass from coming on sooner, that this disease is produced even many weeks after weaning.

The dejections are sometimes okery, or even clay coloured, which does not seem to favour the idea of a redundant secretion of bile. However, they continue pale only for a short time, and soon resume the thin consistence, with their dark colour. The explanation of this I presume to be, that, during this interval,

“ and increased action of a gland has much influence in determining the nature of a fluid secreted. In some cases, bile is discharged of a green colour, and extremely acrid, not possessing the qualities of healthy bile.” *A Treatise on the Liver*, p. 147.

the spastic contraction may have seized the duodenum, at that part where the common duct empties the bile into the intestines. And farther, I presume that the intestines have now become so irritable, that they are stimulated to inordinate action by the aliment, even at the time when, from the supposed stricture of the duct, the bile may be deficient; and hence the griping pain still continues.

But it may, and most probably is, in the ducts, that the explanation of this irregularity, in a great measure, is to be looked for. I have, on dissection, found the bile collected in such

- 
1. Gall bladder
 2. Cystic duct
 3. Hepatic duct

Common duct

quantity in the gall-bladder, that this detention became the cause of the confinement of the bile; for then the natural curve which the cystic duct takes becomes so acute, and the distended bladder presses so much upon it, that the bile is prevented from flowing, or flows in very small quantity. By this retention, the bile becomes more concentrated, and thence perhaps more acrid. And finally, by some action of the stomach or duodenum, by which the very enlarged gall-bladder is compressed, part of its contents is forced out, the distended ducts are relieved, and the intestinal canal is inundated with bile.

That the whole abdominal viscera are in an extremely irritable state, is evident from the symptoms. When it is observed, during dissection, that the liver is affected; that the gall-bladder and ducts are sometimes unusually distended, at another time empty, and yet empty as if recently overcharged; when, again, it is found that no aliment is contained in the canal, but, on the contrary, that the intestines are empty and pellucid, and in some parts violently contracted, it cannot be doubted that the secretion of the liver is the principal cause of the irritation, and of the distressing symptoms.

The mesenteric glands are enlarged, nay, in some instances, inflamed. May not this proceed from the acrid nature of the alimentary

matter to which their absorbing mouths are exposed³?

³ May not the tabes mesenterica often arise in this way? The glands of the mesentery and mesocolon in adults are often enlarged and indurated from dysenteric attacks (*Lempriere, Diseases in Jamaica*, Vol. II. p. 207. *Cruikshanks, Absorbent System*, &c.) And in scrophulous children, where a carious tooth, a running from behind the ears, or a scratch on the chin, will produce tumor in the neighbouring lymphatic glands of the neck, it is not improbable that a continued absorption from a mass of irritating aliment, will occasion incurable obstructions of the mesenteric glands. I was led to this opinion by the following case of a girl fourteen months old, whom I saw on the 30th of May last.

CASE III.

This girl is quite wasted in flesh, with a very large and prominent belly, hard, and somewhat irregular, and the liver is plainly much enlarged. Several of the lymphatic glands in both groins are swelled, and she has all the appearance of a scrophulous child. Her eye is quick, her complexion fallow, and her face and body are covered with an eruption of small and distinctly florid pimples. Her breathing is laborious, and there appears to be a considerable secretion in the trachea. Her tongue is white and furred, her gums look perfectly healthy, and she has cut five teeth.

She evidently labours under two diseases, one in the abdomen, the other of the lungs.

At four months old, she was seized with a green purging, and vomiting of sour and bilious matter. The bowel complaint was so violent, that it was attended with convulsions, and reduced her to extreme weakness, from which she never reco-

This disease, too, chiefly arises in the autumn, a season in which scrophula is not apt to be-

vered. At this time, the eruption first appeared, and, while it kept out, she was always better, and seemed recovering, until, by some unfortunate circumstance, it disappeared for a time, and then she became hectic. Two or three months after the attack of the bowel complaint, her belly became plainly fuller than natural; but her purging had now stopped, and she took her victuals well, even greedily; and therefore the fullness was not much attended to, until it was accompanied with thirst and hectic sweatings. The sweatings were always most profuse when the eruption was absent. Her father being a common soldier, little was done for her, and her complaints were allowed to run their course.

Three weeks ago, she took the inflammation, which, as I have mentioned in note 5. p. 12. was then epidemical, and still she was neglected, until I saw her by accident. She has now a cough, which not unfrequently brings on distressing fits of vomiting.

Since the swelling of her belly came on, she has been quite regular in her bowels. Her urine generally is high coloured, and she has had considerable thirst and fever. She is still sucking her mother.

The gradual coezy and swelling of the belly, with the general stumous appearance of the child, leave me in little doubt as to the mesenteric obstruction; and surely, without straining a point, I may trace the disease to the original bowel complaint, which was of many weeks duration.

How matters may have stood soon after the violence of the primary disease ceased, may be learned from the following short case from *Smellie's Midwifery*, Vol. III. p. 369. "I was called in
 " to a child four months old, who had been for three weeks
 " afflicted with curdled green stools, and at last was brought
 " very low by a thin watery purging. The looseness frequent-
 " ly returned, and all methods of cure had been unsuccessfully

come active in the constitution. It arises after a material change in diet ⁴, from a diet less ir-

“ tried. The child being opened soon after it expired, I
 “ found all the glands of the mesentery swelled, and in hard
 “ knots.”

JUNE 13.

The soldier's child died yesterday, and, upon opening the body, I found, as I expected, the mesenteric glands inflamed and enlarged; the liver nearly twice its natural size, firm and pale; the gall-bladder containing a straw-coloured liquor, scarcely resembling bile; the intestines full of flatulency. In the left side of the cavity of the chest, a considerable effusion showed that this side of the lungs had been chiefly affected.

A French physician, M. Baumes, who treats of the mesenteric disease, says, “ Parmi les maladies dont le carreau est, le
 “ plus souvent, la suite, je compte la diarrhée opiniatre.” *Mé-
 moire, &c. par M. Baumes.*

⁴ My learned friend Dr. Girdlestone, in his account of hepatitis and spasmodic complaints in India, p. 24, has some important observations on the effects of great changes in diet, which I shall transcribe.

“ Every change of diet, from a long continued one, seems
 “ to act as a stimulus on the biliary ducts.

“ The officers and men who were prisoners in chains with
 “ Tippoo Sahib, in the East Indies, were allowed only rice,
 “ water and capsicum, for the many months they were with
 “ him.

“ When they were released, the animal food of every kind
 “ which they attempted to eat, purged them so violently, that
 “ they could take it only in the smallest quantities for a consi-
 “ derable time.

“ The British fleet not appearing with the store ships, the
 “ army was reduced to the necessity of living almost entirely

irritating to one more so, and at a season when, to use the words of Dr. Saunders, “ The hepatic
 “ system in this country is more irritable than
 “ at any other, and when the diseases which
 “ prevail are obviously connected with the state
 “ of the biliary secretion, and approach in
 “ their nature to those which occur in warm
 “ climates.”

Children in this country are weaned generally from the seventh to the sixteenth month; and nurses, and all those who are unacquainted with the profession of medicine, whose reasonings upon it are either without any foundation, or rest on the most absurd analogies, imagine that the weaning brash arises from some morbid change in the bowels, occasioned by the process of dentition, which is going on at the same time.

I shall here observe, that notwithstanding my

“ on animal food. The natives of the army, whose customary diet is chiefly rice, were all purged by this change.

“ The like happens both to men and officers, after living some months at sea on the same diet. On making a port, the vegetables always produce such copious secretions of bile, as oblige them to be moderate in their use.

“ The patent dried cabbage was laid in for the use of the 101st regiment. They had none of it for the first month of the voyage; but as soon as they began to eat it, they were all purged.

“ From this also the same effects have been seen.”

most diligent inquiries, I have seldom been able to deduce any of the derangements of the infantine system from teething^s; and I have been inclined to think, that those physicians who have represented this function as teeming with dan-

^s The gentleman from whom the following quotation is taken, writes from great experience: "In paucis casibus, semitam deviam natura nonnunquam tenet, et violentia exoritur symptomata. Exempli gratia, Si dentis radix vel ramdices citius quam corpus ipsum crescit, vasa gingivæ membranæque investienti propria excitari in abnormem actionem et inflammari possint. Exempla hujusmodi tamen rarissima esse æstimo, neque judico hunc naturalem corporis processum inter quem nulla animalia, si hominem excipias, vel minimum molestiæ pati videntur, pro morbo haberi oportere." *Blake, Disputatio Medica de Dentium Formatione, p. 137.*

In a page or two after, he gives the opinion of Dr. Hudson, which I shall likewise transcribe, respecting scarifying the gums, which is often made a cruel operation; and when it is so, it is always an unnecessary one: "Concerning your question about lancing the gums of children, I have avoided making it a source of revenue to myself, convinced from experience of its futility, except in inflammatory cases, and where the teeth are near the surface. In such cases, the lancet gave relief; and I believe seldom or never on other occasions. Where I have operated by the advice of the attending physician, it is true, many children have recovered after the operation; but I could never fairly say, that the recovery was in consequence thereof." *p. 141.*

When the gum of an infant is inflamed at the base, at the same time that there is a soft whitish spot on the ridge of it, it may be right to scarify slightly; but I shall never think this necessary at any other time, nor can I imagine any danger in teething, where no increased action appears in the gums.

ger, have not accustomed themselves to that careful investigation, without which these diseases cannot be understood. The weaning brah, I have the strongest reason to believe, has no connection with teething, farther than that they sometimes meet in the same child. I have known this disease, in many instances, where the gums were neither swelled, nor indurated, nor inflamed, and where there was no salivation, nor any appearance of pain in the mouth. I have seen it where children were cutting their teeth easily; and where many of them have come without difficulty before weaning; still the disease has supervened. But perhaps the strongest argument that can be used, would arise from the observation which I have frequently made, that this disease occurs in children of three months; and I have often known it several months before teething came on.

The history of the disease instructs us in the precautions to be used for providing against it. If the observation which I have made be just, that it happens much oftener in the autumn than at any other time of the year, it will be readily agreed, that delicate children should, at that season, be kept a month or two longer on the breast than might be thought necessary at any other, rather than be exposed to the aches

and hazards which never fail to accompany this distemper.

And although I do not admit, that this disease is in any degree to be attributed to teething, yet I should certainly recommend it as a general rule, not to wean children before they have two teeth in each jaw; for this seems to be the natural period at which the food of infants should be changed; and, if I am not deceived, I have observed that those children who are late in cutting their teeth, are very much exposed to the attacks of weaning brash.

The exciting cause of this disease I consider to be, too sudden an alteration of the diet of a child at an unfit season; and if this opinion be just, it follows of course, that children ought at all times, but more particularly in the autumn, to be weaned gradually, and well accustomed to the food on which they are afterwards to subsist, before they are finally taken from the breast⁶. When the children of affluent parents are deprived of their nurse in the early months of infancy, no time is to be lost in procuring ano-

⁶ Breast milk is the proper food for infants under six months; but, after that period, I think that they should be accustomed to bread and milk, eggs and weak broths, once a day, and thus gradually weaned from the breast. This will be less likely to produce violent effects on the constitution, than weaning all at once, which is sometimes recommended.

ther, with milk fuitable to the age and condition of the child.

That an accidental diarrhœa, in an infant leaving off the breast, may, especially in the autumn, soon degenerate into this disease, is not improbable. To provide against this, attention should be given to the cause of the diarrhœa. It should be carefully observed, whether it arose from cold, and in consequence of the sympathy which the intestines, and more particularly the hepatic system, have with the skin, or with the extremities; or whether it was not occasioned by improper food. In the former case, no remedy proves so useful as flannel worn nearest to the skin; and with regard to the latter, I must here refer to the directions for diet which I shall have occasion to deliver in treating of the cure of the disease.

Before I had formed the opinion of the disease which I now hold, I limited my attempts to the alleviating of the more urgent symptoms, endeavouring sometimes to restrain the purging by opiates, and at others anxious and happy to restore it again. I therefore used opiates in all ways, with aromatics; then the testaceous powders, with occasional doses of rhubarb. I tried laxatives in the beginning of the disease, and I think that they were useful. Then imagining the disease to be dysenteric, I gave ipecacuan, both as an emetic, and in small doses, mixed with prepared

chalk, as an antispasmodic, to restrain the irregular action of the bowels, and certainly with some effect. Although I had some success from these remedies in the early stages of the disease, I found invariably, that when the disease had taken a firm root, it frustrated all my exertions.

In the beginning of the disease, and even at all periods of it, when the attack is slight, I should certainly recommend a dose or two of rhubarb, to the extent of five or six grains, at the interval of two days between each dose; and that, in the mean time, the child should take half or a third part of a grain of ipecacuan powder, mixed with six or eight grains of prepared chalk, and a small portion of some aromatic powder, as cassia, every four or five hours. Should there be much griping along with the purging, a glyster of mucilage of starch, with five or six drops of laudanum in it, administered at bed-time, will be attended with much advantage.

The success of these remedies will depend upon a strict attention to diet. An animal diet produces less irritation than one which is solely composed of vegetable matter. Eggs, the finer kind of light ship biscuit, or arrow root, custard, the juice of lean meat, plain animal jellies, and broths freed from their oily part, and milk, are the chief articles of nourishment which I have ordered: The last is often the on-

ly one which children will take. I have wished for an opportunity of restoring the breast milk to a child, as I am convinced that it would be useful⁷, more particularly where children have

⁷ This opinion is strengthened by the following history. It is a description of the disease in question, pretty accurately represented, although the author from whom it is taken does not appear conscious that he is describing a frequent and specific disease. His object is to prove, that breast milk is the proper and only food for infants; a proposition which no one will deny.

“ The little infant alluded to was very healthy when it was
 “ three months old, and was then weaned, on account of the
 “ sickness of the wet nurse, but soon afterwards ceased to
 “ thrive, and had continual bowel complaints. At the age of
 “ nine months, I was requested to visit it, and was informed
 “ that it slept very little, was almost incessantly crying, and
 “ had for many days brought up nearly all its food; was be-
 “ come very rickety, and had the appearance of an infant
 “ nearly starved. Trial had been made of almost every kind
 “ of food, except the breast; and the child had been many
 “ weeks under the care of an experienced apothecary, was
 “ constantly in a state of purging, and seemed to be kept alive
 “ by art.

“ On the first sight of the child, and on the face of this ac-
 “ count, it was very evident that this infant was not nourished
 “ by the food it received, and that the complaint lay wholly
 “ in the first passages. But reduced as it was, I had little ex-
 “ pectation from medicines, and therefore gave it as my opi-
 “ nion, that either the child still pined for the breast, in which
 “ case I doubted not that it would take it, though it had now
 “ been weaned six months; or that it ought to be carried im-
 “ mediately into the country, and supported for some time up-

been prematurely weaned ; but I never yet had it in my power. Thin rice, or barley water, mixed with a small proportion of skim milk, is a very proper drink for children under this disease. Vegetables of all sorts, particularly fruits, acids, and compositions of which sugar or butter form a part, and fermented liquors of every kind, have been strictly prohibited.

Every one is aware of the bad effects of cold feet to those whose stomachs and intestines are irritable. I have, therefore, always recommended woollen stockings, and every precaution against cold irregularly applied ; and I have added to the flannel which is worn nearest to the skin, a broad bandage, tied firmly round the loins. To take off the continual spasms, I have generally ordered that fomentations, and the warm bath, should be frequently used.

But I found that the utmost attention to regimen and medicine failed in the advanced stage of weaning brash. After having, with the great-

“ on asses milk only, or perhaps be fed now and then with a little good broth.

“ My advice being taken, a good breast was procured, which the infant seized the moment it was put to it, and, after sucking sufficiently, soon fell asleep for several hours, waked without screaming, and took the breast again. It is sufficient to add, that the child ceased to puke or be purged, and recovered from that hour, and, after sucking eight or nine months longer, became in the end a fine healthy child.”

est mortification, witnessed, in one season, the death of seven children, I thought myself warranted in changing the medicines, which I had used, for others which might have a greater effect on the liver, and produce a change in the biliary secretion.

From the powerful influence of calomel on the body, and more particularly on the system of the liver, and from observing that, in many diseases and constitutions, after the first or second dose, it ceases to exercise its cathartic powers^{*}; and, lastly, from considering it as a less violent medicine with children than adults, I was led to the trial of it in this disease. I began with a child who had been ill for some months, and who appeared not likely, under the common treatment, to survive long. She was the second of a family, and, I may almost say, she was predisposed to the disease; for her elder sister had been very ill, and had with difficulty recovered from weaning brash. She had

* In one child, who, in three days, took between forty and fifty grains of calomel, in croup, I found that the bowels became exceedingly slow, and at length I was obliged to excite them by a dose of jalap. It happens with the use of other laxative medicines, that the bowels become costive. "After Wyatt had long taken an ounce of cream of tartar a-day, she even became costive with that dose, and required the use of gamboge." *Ferriar, Medical History and Reflections*, Vol. I. p. 90.

unfortunately been weaned in her fourth month, as her mother was deprived of her milk by a fever; so that likewise, in the exciting cause, every thing was unfavourable. She had half a grain of calomel evening and morning; and although the other directions which I had given, I had reason to believe, were disregarded, yet under this medicine she was in a fortnight perfectly restored.

Since this case, I have had the usefulness of calomel evinced by many additional cases, and now I have the firmest belief, that it will prove effectual, at a stage of the disease, when no other medicine that I am acquainted with, would be attended with any permanent benefit.

As, however, it must be a day or two before the calomel has any effect upon the liver, it may be proper, in the mean time, to prevent the disease from debilitating the child by a continued griping, purging, or vomiting. This can often be done, in a certain degree, by glysters containing a few drops of laudanum. I have seldom, of late, ventured to give laudanum by the mouth; for I think that no accident connected with the disease, can account for the changes which I have seen take place after laudanum and large doses of absorbents have thus been given.

The success which I have had with calo-

mel has induced me to give it in diarrhœas⁹ of children. Wherever I have suspected a morbid state of the bile, which is one of the most common causes, I have used it with great success. I have, by half a grain of calomel evening and morning, or by giving a grain every evening for a week or ten days, removed diarrhœas, even when the medicine was administered under the most unpromising appearances. I have also found it a most effectual medicine in the chronic state of the bilious diarrhœa of children at the breast.

After the third or fourth dose of calomel,

⁹ Calomel is recommended both by Drs. Armstrong and Underwood, in different diseases of children. The former prescribes it in what he calls the *The Hectic Fever*, during the time of teething, and in *The Tooth Rash*. The latter, in the fourth edition of his treatise, which I saw only a few days ago, in some very desultory remarks upon diarrhœa, recommends calomel. "In a certain disordered state of the bowels, which frequently occurs, and is disposed to continue for a long time, during which infants, though not precisely ill, do not thrive, nor look well." The species of diarrhœa which he alludes to, I suspect is weaning brash, from what follows: "The stools are said to be always bad, being sometimes of a green colour, at others of a pastey consistence; sometimes very numerous, and at others, infants are for several days coltive." He recommends calomel in the following vague terms: "In this as well as in other bowel affections before described, when laxative, alkaline, and absorbent medicines have been found to procure no permanent good effect, calomel often proves a sovereign remedy." *Article Diarrhœa.*

there is generally a great change in the colour of the alvine discharge. It becomes of a dark mahogany colour, and is in general more noisome. When this change takes place, it promises a favourable crisis in the disorder. Soon afterwards, the children become free from fever, more placid, and in a day or two after their appetite returns, with their former complexion, and every other demonstration of health. I never found, in the many cases in which I have given calomel, that it produced salivation, or any other unpleasant effect; and I am now convinced, that it is not only one of the most general and active medicines in the pharmacopœia, but that it is likewise one of the least hurtful.

C A S E S
OF
WEANING BRASH.

I NEED scarcely mention, that the first four cases which I am to detail, occurred before I had tried the effects of calomel.

CASE IV.

OCTOBER 5.

P—— S——'s child, twelve months old, blue eyes. A month ago this child was weaned. Nearly a week after the weaning, a purging commenced, frequent, but particularly so during the night. The stools were very liquid, and generally green. The evacuation was attended with griping pains, and the child, who was healthy before, became pale and weak. After the purging had continued a fortnight, a vomiting came on, with which the child was frequently seized. He had scarcely any appetite for food, but a very great thirst; he was intolerably fretful, and was becoming emaciated. He had little intermission from fever; and this febrile state had been encouraged, by small quantities of ardent spirits, which his parents ignorantly were frequently giving him. He was very fond of this kind of medicine, and was in some degree continually intoxicated.

About eight days ago this was the state of the boy. I then put him on the following diet: Boiled skimmilk and bread for breakfast, and, to be taken occasionally, the yolk of an egg, or a little weak beef tea, for dinner; a small pro-

portion of milk, in thin rice gruel, as his usual drink ; and, when griped, a tea spoonful of prepared chalk stirred up in it.

He had a small dose of rhubarb, and next day I began to give him a third of a grain of ipecacuan every three hours. Under this medicine, which has been continued since, the frequency of the purging has gradually abated, and now he is recovered from every thing but weakness.

CASE V.

OCTOBER 10.

Benjamin H——n's child, near thirteen months old.

She was weaned at eleven months, and about a fortnight after, a purging came on. This lasted about a month. Her stools were in general green, and four smelling, and the disease was slowly gaining ground. About a week ago, the purging was checked by testaceous powders; and whether from this, or from a sudden change in the disease, the day after the purging stopped she was seized with slight but general convulsions, which daily increased, until yesterday morning, when they carried her off. When the spasms commenced, the return of the purging was procured by laxative medicines; then she had anodyne injections given, and every imaginable antispasmodic, without the smallest effect.

The day after the purging was checked, I observed an eruption all over her skin, which, upon examination, proved to be the strophulus candidus^{*}.

^{*} See the first number of Dr. Willan's excellent book on eruptive diseases.

In this child, the original disease had by no means arrived at so great a height as I have seen it. The emaciation was not so great as is usual, nor the purging nor derangement in the alimentary canal so determined. I had permission to examine the abdomen,

DISSECTION.

Upon opening the belly, the intestines appeared peculiarly white and free from blood, unless on some places on the mesentery, where there were some small congeries of turgid veins, but which were far from being inflammations.

In several parts of the intestinal canal, there were remarkable contractions of the diameter of the gut, even to the dimensions of a common earth worm; and of these contractions, at least five or six were apparent, without deranging the natural situation of the viscera.

This was exactly the state of the intestines, which should have led me to expect intus-susception of some portion of them; and accordingly, upon turning up some of the convolutions of the ilium, I observed a perfect intus-susception of a few inches of the gut, but without inflammation or adhesion of the inclosed portion.

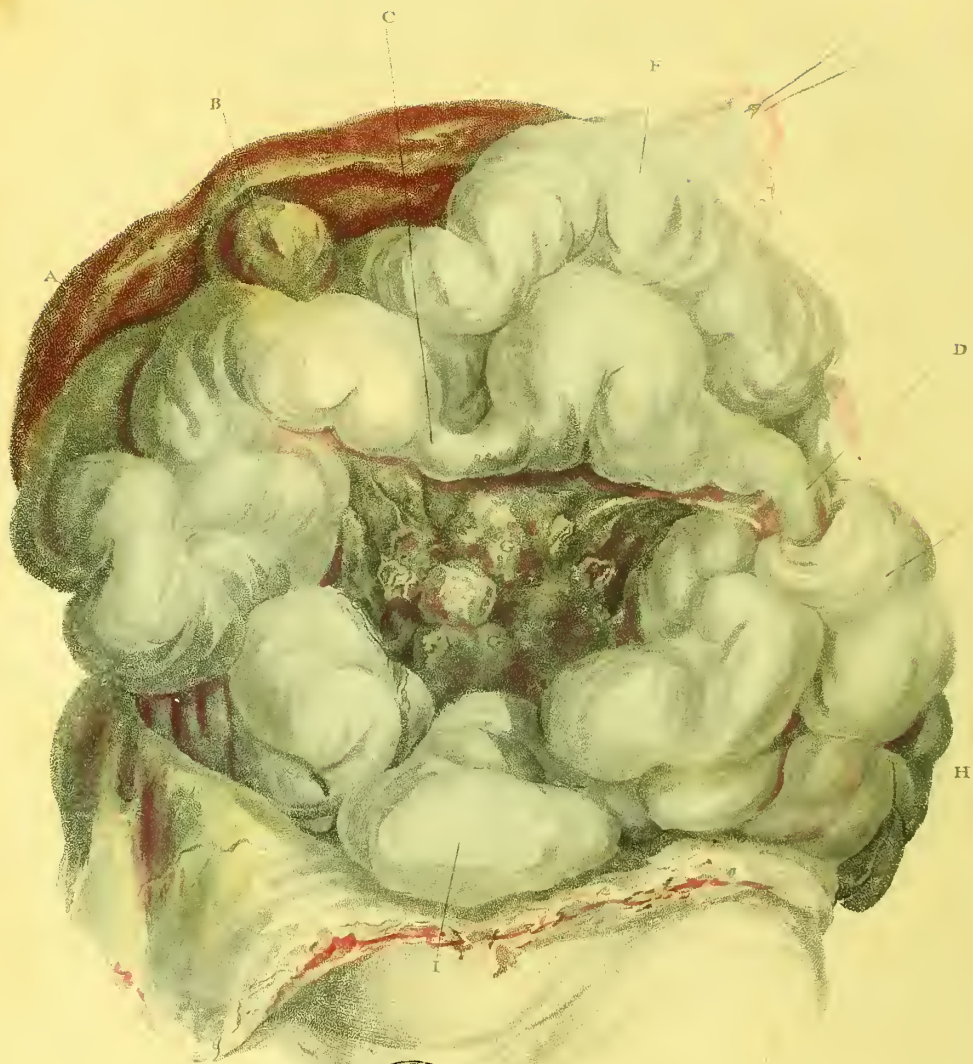
Upon spreading out the mesentery, some of

the lacteal glands were observed much enlarged, and considerably inflamed.

The liver was enlarged and firm, and the gall-bladder, and the hepatic and cystic duct, were gorged, and greatly distended, with a light green-coloured bile.



Plate VII.



J. Meunier sculp.

EXPLANATION

OF

PLATE VIII.

A, The LIVER.

B, The GALL-BLADDER considerably distended with Bile.

C, A Remarkable Contraction in the SMALL INTESTINES, of which there were several concealed by the Convolution of the INTESTINES.

D, A Portion of the SMALL INTESTINES contracted and drawn into the Lower Portion, so as to form an INTUS-SUSCEPTION.

E, The Containing Portion of the INTUS-SUSCEPTION.

F, The COLON held out by the OMENTUM.

G G, The GLANDS in the ROOT of the MESENTERY much enlarged.

H, The MASS of the SMALL INTESTINES fallen over the SIDE.

I, The BLADDER of URINE.

CASE VI.

DECEMBER I I.

William B——'s child, thirteen months old.

In this child, the weaning brash was seen in its last stage. He was weaned at eleven months, and was at that age healthy.

Three days after he was taken from the breast, he was attacked with a purging, which was neglected, and allowed to become habitual, the stools, however, varying very much. After the purging had continued five weeks, and emaciated and weakened the child, it became less frequent, but his health did not improve; he took little sustenance, and had a constant fever, with colic pains. The purging was suspended in frequency only; for the stools were still loose and clay-coloured, or rather okery; but, instead of troubling him incessantly during the night, they only occurred once in thirty-six hours. After a week passed in this way, the purging returned, and it was so confirmed, that his mother observed that he purged within three or four minutes after taking drink of any sort. At the end of the seventh week, his extremities swelled, and were with difficulty kept in heat;

his purging was again repressed, but still he continued declining. He has been ill now for two months; he has constant fever, thirst, and fretfulness. His limbs are swelled, but he is quite flabby and wasted in flesh; he sleeps very little, and requires to be kept constantly in motion in his mother's arms; he has much of that peevish expression which appears to be the effect of the irritation of constant pain; his urine is scanty and high coloured, like the urine of a jaundiced person. Round the anus there is a considerable excoriation, from the acrimony of the dejections. His breath has a heavy, sour, and singularly disagreeable smell; his tongue is foul and sore, and, together with the rest of his mouth, is threatened with apthæ. I do not recollect that he was troubled with the vomiting which so often attends this complaint. His mother remarked to me, that when the purging comes on after the costive state of the bowels, the excrement is greener than when the stools are less frequent. In this boy, the tunica albuginea has lost its beautiful transparent colour, and is of a dead yellowish hue.

DECEMBER 18.

This boy died yesterday.

DISSECTION.

The intestines, floating in a considerable quantity of deep yellow fluid, appeared white,

and almost pellucid. In several parts, there were the same straitenings, from spasmodic stricture, as in the preceding case. I reckoned seven such contractions in the course of the canal: The most remarkable was a contraction of the sigmoid flexure and rectum, which at first seemed impervious; and at one part of the canal there was an intussusception.

The mesenteric glands were somewhat enlarged and inflamed, but so slightly, that I was in doubt whether I should note this deviation.

The gall-bladder was greatly distended, inasmuch, that from the acute turn which the cystic duct took, it required such pressure of the gall-bladder betwixt the fingers, as I feared should have burst it, in order to force the dark bile from the common duct into the duodenum.

The liver was large, firm, and of a deep red colour. The bladder was so much distended, as to rise from the pelvis, and its fundus reached the umbilicus. The ureters were likewise enlarged, and the kidneys felt small and hard.

C A S E VII.

I did not see the child who is the subject of this case, until within a few days of his death. The disease came on soon after weaning, and he had been ill many weeks. The appearances of the stools were various; but the purging gradually wasted him. The purging had abated before he died; but its effects were fatal. His limbs were swelled, and his feet, almost to bursting; and in each of his hams there was a large discoloured spot, of a copper colour. His pain was often very great. Towards the end of his illness, his stools were paler than before. He had always been subject to diarrhœa, from the slightest causes.

DISSECTION.

In this case, the whole of the intestinal canal was not so pale nor transparent as I have seen it, but it was so in many parts. The arch of the colon was so much distended, as to fill the upper part of the abdomen.

The small intestines were very irregularly contracted. This was observable in all the contractions, that they were firm and solid to the feeling, but, when fingered or distended, the

thickness and solidity entirely vanished, and they were in no way distinguishable from the other portions of the gut. Again, when a portion of the gut, thus contracted, was lifted up, it was not round, but irregular, as if moulded by the surrounding intestines. In one of the contracted portions, there was an intussusception. The gut had slipped in but a very little way, and was easily withdrawn; and, from the degree of stiffness which remained, it appeared as if the gut had been doubled before it was drawn in. The stomach was much contracted.

The liver was large, firm, and of a bright red colour. The gall-bladder was large and empty, at least it appeared so, although there was a large spoonful of bile contained in it. The bile was of a dark green colour, and had flakes floating in it.

CASE VIII.

JULY 12.

Mr. L——'s daughter was weaned at six months, when she was fed upon panada chiefly, and weak broths. Three weeks after and about a fortnight ago, the disease began. The stools were slimy and four smelling, and the disease was reducing her very fast. A severe vomiting came on the day before yesterday, and has been constant ever since. Yesterday the purging was suspended, but it returned in the night, and is very severe. Her urine is high coloured; the child is alarmingly weak; she has great thirst; her tongue is very foul, and she has a hectic glow upon the cheek.

JULY 13.

She died last night, quite exhausted by the vomiting and purging.

The dissection was not allowed.

In this case, no attempt had been made either by medicine or change of diet to check

the progress of this disease, and the rapid termination of it is to be ascribed to the stimuli, which had primarily occasioned it, continuing to act upon the highly irritable intestines.

CASE IX.

FEBRUARY 12.

Mr. T_____’s child, eight months old.

This child was weaned between her fourth and fifth month, from her mother having been deprived of her milk by an epidemic fever about the beginning of November. About eight days after weaning, she took a purging, which has never left her since. She is now constantly fretful; her sleep is unrefreshing, and her appetite is much depraved; her countenance is alternately of a fallow paleness and flushed. She has a considerable heat of skin, and thirst, and her urine is scanty and high coloured, dyeing linen cloths of a deep yellow; her stools are quite watery, very frequent, and of a brownish colour. She generally vomits every thing which she takes at her meals; and sometimes the aliment thus rejected is mixed with bile.

With strict attention to be paid to her diet, I ordered her to have half a grain of calomel, mixed with six grains of prepared chalk, and four grains of powdered cassia, night and morning, and a flannel dress.

FEBRUARY 13.

She was last night no better ; her purging was rather more frequent.

FEBRUARY 14.

Last night much as before ; her purging not quite so frequent ; the dejections are changed to a dark brown colour.

FEBRUARY 15.

Her mother declared, that since this child was weaned, she has not had so good a night, which she attributes entirely to the powders. She had only two stools in the last twelve hours, which were very dark and fetid ; her thirst and fever are somewhat abated.

FEBRUARY 17.

Her stools are exceedingly dark. She continues to recover her health. And now I have an additional proof that the calomel has had the principal effect in her amendment ; for the flannel which her mother was desired to apply, had been neglected or withheld.

FEBRUARY 24.

The looks of this girl are much improved, and I consider her as rapidly recovering. All the febrile symptoms are gone. She has not more than two stools in the twenty-four hours, and they are of a more natural appearance, although it does not appear from them as if the nutritive process were as yet perfect, as part of her diet passes crude and uncooked.

FEBRUARY 26.

This child continues very well. Upon examining the mouth to-day, I observed the first tooth about to pierce the under gum.

In summing up this case, I am naturally led to compare it with the sixth case. The children seemed to me, when I first saw them, to be very much in the same state. The course and termination of the cases will suggest a useful lesson.

In the beginning of April, the same little girl had a return of the purging, which was again removed by a short course of calomel.

CASE X.

MAY 6.

Mr. N———'s child, eleven months old, had been remarkably healthy and cheerful, and had never taken any thing but breast milk, until the day she was weaned. Her mother, from having had an attack of acute rheumatism, was forced, without preparation, to wean her exactly five weeks ago. On the day after weaning, she was taken with a purging, which has been violent ever since. The dejections were green at first, and attended with tenesmus, which made her complain violently before each stool. Her stools have varied much—yesterday they were quite watery, so that the linen looked as if it had been stained by the matter of a gonorrhœa; and by their acrimony they have occasioned some excoriation. Her urine is high coloured and hot, her tongue is white, and her breath is heavy smelling. As usual, she has become ill tempered, particularly during the night; she has lost her former rosy complexion; and there is rather a looseness in the muscles, than an absolute emaciation.

She has great thirst. The drink she takes

is chiefly milk and water, and, for these two days she has vomited it curdled. Before she was weaned, she had two teeth in each jaw, which came without any difficulty. About a fortnight ago, two more came through in the upper jaw ; but the disease has been more violent since. The gums are perfectly healthy, and there is, for the present, no appearance of any more teeth coming forward.

MAY 7.

She had an anodyne glyster last night, which she kept a good many hours. She had half a grain of calomel, which is to be repeated every night and morning.

MAY 8.

She has had four doses of calomel, and her belly is already more regular. The stools appear of a very brown colour.

MAY 11.

Since bed-time last night, she has had only one motion. Her looks are improved, and her thirst has left her. She is in every respect better.

In this child, the disease was increasing. It had not, however, arrived to such a height as to make it improbable that it should yield to the

remedies which I used before I thought of calomel. But I had observed, that children so immediately recover their appetite upon the administration of calomel, that I thought it proper to give the medicine which would most speedily restore the patient to perfect health.

C A S E X I.

SEPTEMBER 9.

C——— A———, two years three months old, has a frequent purging, which began four days ago, and which arose from the carelessness of his attendant, in having permitted him to eat some potatoes. The excretions from the intestines are greenish and slimy. The child is so much reduced by them, that he totters as he walks, and is quite pale and sickly. He has considerable thirst; his appetite, however, is not much impaired; his skin is hot, and his pulse is quickened by the least exertion.

This child has been, all his life, liable to diarrhoea, from the slightest causes. He had it frequently while on the breast; and, upon being weaned, he had a severe attack of weaning brash; since which time, from the least deviation in the regimen or diet which is pointed out for him, he invariably suffers in his bowels. He has had several attacks similar to the present; and indeed, to a certain degree, he has had a habitual looseness, which has kept him a pale and puny child. He has afforded several proofs of the efficacy of calomel in removing

these complaints; for he has always recovered in a few days after the administration of it.

SEPTEMBER 15.

I ordered for this child, previously to giving him the powders with calomel, a dose of eight grains of rhubarb, from thinking that the irritation might be kept up by some indigested food lodging in the bowels (a thing which I have known to take place many days after it had been taken); and after the rhubarb had produced a considerable effect upon the bowels, I recommended that a dose of calomel should be given twice a-day. The child very soon recovered from the purging, and is again restored to his usual state of health.

CASE XII.

SATURDAY, SEPTEMBER 19. 1801.

To-day I was again sent for, to visit the child whose case is related in p. 15. I had not seen her since the 16th of June; but I understand that she has never been altogether well, that she has, ever since, had a looseness, although to no very great extent. About three weeks ago, she was sent to the country, in the expectation that she would benefit by change of air; but, being thus removed from the more immediate observation of her mother, she was not so well attended to in her diet; in particular, she was allowed constantly to swallow down new milk. This nourishment proved too heavy for her stomach, and aggravated the purging, and brought away great quantities of slime, mixed with green feces. She was brought home some days ago much worse, and on Thursday her mouth was observed to be sore. To-day her friends were much alarmed at the appearance of it, and at the state of her bowels.

On her tongue there are several ulcers, each about the size of a herring scale, with inflamed edges, and, judging from the expression of the child when any dry food is put into the mouth,

very painful. The lips resemble the dry and chopped lips of a person in typhus, smeared with fordes, and with the ragged cuticle hanging from them in shreds. She has just got one double tooth in the upper jaw; and, judging from the breadth of the gums of the under jaw, there are double teeth about to free themselves on each side. The excretion from the belly is slimy, frequent, and four. The child sleeps none, has considerable thirst, would take sustenance, but is almost convulsed with pain when any thing is put into her mouth.

Hab. Pulv. Rhei, gr. vi.

SEPTEMBER 22.

She has had half a grain of calomel morning and evening since the 19th. The looseness is somewhat checked in frequency; the aphthous state of her mouth is not worse; the child is still in considerable pain, and does not sleep at night. The diet has been particularly attended to, and no drink allowed, but rice gruel, with a little milk in it.

℞ Mucil. Amyl. ℥ ij.

Tinct. Kin. ℥ ℞.

Theb. gr. v. M.

f. Enem. Injic. h. f.

SEPTEMBER 25.

The prescribed plan has been adhered to, and the child is strikingly relieved. The glyster

has procured regular sleep for the child, and the ulcers in the mouth are skinned over. The dejections are much less frequent; and, although it will require a longer course of the calomel to effect a complete restoration, yet they are much more of a healthy and concocted nature.

From my Notes, I could add a great many cases more which have been fortunately treated by calomel; but I think it unnecessary to multiply the proofs, as those which I have adduced will demonstrate its usefulness. The examples which I have already given, are quite sufficient to illustrate the symptoms of this disease, which indeed admits of less variety than might be imagined.

ERRATA.

- Page 10. line 20. *For Spegelii read Spigelii.*
26. 10. *After may insert be.*
27. 1. *For detention read accumula-
tion.*
39. penult. *For History read Histories.*

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